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Evaluation of Night Vision Goggles (NVG)/ Laser Illuminator for Maritime Search and Rescue

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This report is the fourteenth in a series that documents the Improvement of Search and Rescue Capabilities (ISARC) Project at the U.S.C.G. R&D Center.

16. Abstract
During the period 17 October to 04 November 1994, an experiment was conducted by the U.S. Coast Guard Research and Development (R&D) Center to evaluate the effectiveness of a laser illuminator when conducting nighttime searches using night vision goggles (NVGs) onboard HH-60J helicopters. Two helicopters were used to search for 18- and 21-foot small boats, 6- and 10-person life rafts, and simulated persons-in-the-water (PIWs). One of the HH-60J helicopters was fitted with a laser illuminator; the other helicopter was used as the experimental control and did not have an illuminator. Both helicopter crews used NVGs.

A total of 202 target detection opportunities were generated for laser illuminated targets (all types) and 620 target detection opportunities for nonlaser-illuminated targets. These two data sets were analyzed to determine if the use of an active illumination device with NVGs exerted a statistically significant influence on target detection probability. Lateral range curves and preliminary sweep width estimates are presented, for evaluation purposes only, when the data were sufficient to support the analysis. Human factors data are also presented and discussed.

The laser illuminator is very effective in enhancing detection capability of the NVGs for small search and rescue targets. The laser provides the greatest advantage in low ambient light conditions and against targets outfitted with retroreflective tape.

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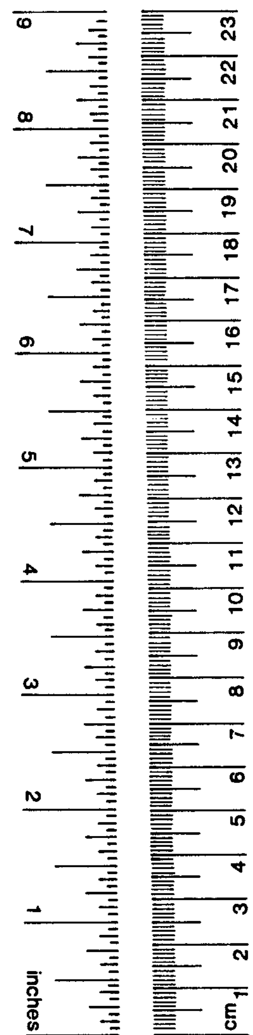
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (WEIGHT)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (EXACT)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly).



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (WEIGHT)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	0.125	cups	c
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
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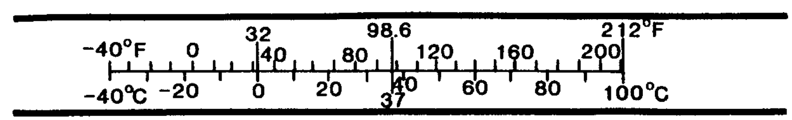
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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EXECUTIVE SUMMARY

INTRODUCTION

1. Background

This report evaluates the effectiveness of an airborne laser illuminator during nighttime night vision goggle (NVG) searches for small search and rescue (SAR) targets. The NVG searches were conducted using a pair of HH-60J helicopters. One helicopter, from U.S. Coast Guard Air Station Cape Cod, was outfitted with a floor-mounted laser illumination system that illuminated the surface of the water off the right side of the aircraft. A second helicopter, from Air Station Clearwater, acted as the control aircraft, and conducted searches without an illuminator. Data were collected during a three-week test period in a search area off Fort Pierce, FL from 17 October to 4 November 1994.

This evaluation was conducted by the U.S. Coast Guard Research and Development (R&D) Center as part of the Improvement of Search and Rescue Capabilities (ISARC) Project.

2. AN/AVS-6 (ANVIS) NVG Description

The ANVIS NVGs are equipped with Generation III image intensifier tubes. All helicopter crew positions were provided with ANVIS NVGs on hinged helmet mounts. The NVGs restrict visual perception in several ways: field of view is restricted to 40 degrees; depth perception is severely inhibited; visual acuity is reduced to 20/40, at best; and the display is monochromatic (green). The ANVIS design allows limited, non-NVG peripheral vision.

3. Laser Illuminator Description

The laser system consisted of two 15-watt near-infrared lasers, fiber optic cable and a pair of optics set in two Pelco™ enclosures. The enclosures were coupled to the lasers by the fiber optic cables and mounted on a retractable platform bolted to the floor just inside the right side door of the helicopter. The platform was tilted about the aircraft longitudinal axis to approximately 20 degrees to illuminate the surface out to 8 nmi forward and 2 nmi abeam of the aircraft. The 10 second direct exposure eye-safe distance for these lasers was 0.84 meters for the naked eye and 42 meters for 7x binoculars. The aircraft search altitude was 300 feet and well beyond the eye-safe distance.

4. Approach

Targets consisted of 18- and 21-foot small boats, 6- and 10-person life rafts, and simulated persons-in-the-water (PIWs). Data were collected using operational Coast Guard search craft with crews that had NVG experience that ranged from very little to extensive. Standard search patterns were used to search for randomly placed targets within assigned search areas. The search crews were not alerted to target locations.

A Differential Global Positioning System (DGPS) tracking system was used to monitor and record target and search craft positions. Target detections and human factors data were logged by observers onboard each search unit. Environmental data were logged onboard both the workboat "Big D" and the helicopters. An environmental data buoy was deployed in the exercise area to record winds, sea condition and air/water temperatures.

Data reconstruction was performed to determine which target opportunities resulted in detection and at what lateral range each opportunity occurred. Raw data files were developed that included each target detection or missed opportunity, along with the values of 28 search parameters of interest for each target opportunity. These data were analyzed on a desktop computer using a variety of statistical techniques including binary, multivariate regression analysis. Lateral range versus target detection probability plots and sweep width estimates were developed for search conditions that were well represented in the data. The search parameters were analyzed for their significance at the 90-percent confidence level.

Human factors data were compiled and analyzed quantitatively where possible. Subjective comments by search unit crews and data recorders were synopsized and incorporated into the Test Results chapter of this report.

RESULTS AND CONCLUSIONS

1. Results

A combined total of 822 target detection opportunities were generated for the target types discussed in this report. Table 1 provides a summary of environmental and moon parameters for each target type.

Table 1. Range of Environmental and Moon Parameters Encountered

PARAMETERS*		TARGET TYPE		
		BOATS	RAFTS	PIWs
ENVIRONMENTAL	Time on Task (hrs)	0.0 to 3.9	0.0 to 4.4	0.1 to 6.0
	Precipitation Level	0	0 to 1	0
	Visibility (nmi)	10 to 15	5 to 15	10 to 15
	Wind Speed (knots)	6.0 to 14.6	.9 to 13.6	4.0 to 12.6
	Cloud Cover	.1 to .2	.1 to .6	.2 to .8
	Significant Wave Ht. (ft)	2.3 to 4.6	2.6 to 5.2	2.0 to 3.3
	Whitecap Coverage (0, 1, 2)	0 to 1	0 to 1	1
	Relative Humidity (percent)	65 to 95	54 to 95	90 to 95
	Air Temp. (deg C)	25.5 to 27.0	21.7 to 25.7	25.2 to 26.7
	Water Temp. (deg C)	26.2 to 27.0	25.5 to 27.5	26.4 to 27.5
MOON	Elevation (degrees)	-58 to 55	-48 to 76	-67 to 38
	Phase	.2 to .8	0 to 1	.1 to .6

See section 1.5.7 for parameter definitions

Data were analyzed to determine whether a statistically significant difference existed between the detection performance of the laser-equipped and non-equipped helicopters for the small-boat, life-raft, and PIW targets.

Lateral range plots were developed for each data set with sufficient data to support this detailed analysis. The calculated sweep width values are preliminary and are calculated for evaluation purposes only.

Observations made by the test team indicated that the illuminator may decrease lookout boredom on dark nights. There is evidence, though not conclusive, that illuminating only one side of the aircraft degrades the performance of the crew members on the non-illuminated side.

2. Conclusions

1. The laser provides enhanced detection of all targets under all conditions. However, the improvement is most dramatic under no-moon conditions. PIW targets are essentially invisible under these conditions unless illuminated by the aircraft.

2. The door-mounted laser created a cone of back-scattered light that was difficult to search through. However, the searcher could still detect retroreflective tape reflections through the beam. Even with the distraction of the beam scattering off the atmosphere, the laser still enhanced detection capabilities.

3. There is some evidence from the detection performance versus relative bearing analysis that a laser search off only one side of the aircraft may cause degradation on the non-illuminated side. The data for this analysis are sparse and do not support a definite conclusion.

4. Laser illumination works best when the target is fitted with retroreflective tape. The bright flashes from the target are very detectable, even through the laser beam. In the case of targets without retroreflective tape, the laser reflection intensity may be degraded by dull paint or dark surfaces. Also, the beam tends to be reflected forward, away from the helicopter.

5. On dark nights, the laser illuminator helps alleviate boredom and the visual noise caused by the high gain of the NVGs.

RECOMMENDATIONS

1. The surface of the water should always be illuminated. A near–infrared illuminator does not affect the night vision of the aircrew. A laser illuminator provides large area illumination at low power output. The resulting illumination provides retroreflection off any applied tape and can provide very long detection ranges, regardless of moonlight conditions.

2. Laser illumination should be employed on both sides of the aircraft and should illuminate to at least ± 90 degrees off the nose of the aircraft.

3. Future research should be conducted with the following:
   - Laser illumination on both sides of the aircraft
   - The laser mounted on the underside of the aircraft
   - A full range of moon conditions
   - A full range of target types.
   - A new coat of paint for at least half of the small boats.

ACKNOWLEDGMENTS

The authors would like to thank the numerous individuals who contributed to or participated in this research effort. In particular, we would like to acknowledge personnel from the following Coast Guard commands: Air Station Cape Cod and Air Station Clearwater for providing helicopters and crews, Station Fort Pierce for providing logistical support, Aircraft Repair and Supply Center and Air Station Elizabeth City for assistance in developing a GPS-based tracking system.

We extend our appreciation to Capt. D. Ferguson, Mr. M. Allen, Capt. A. Keipert, Mr. D. Webb, Lt. R. Ireland, TSGT R. Magdaleno, and Mr. J. Kelly from the USAF Phillips Laboratory Semiconductor Laser Applications Branch for the design, construction, deployment and on-site support of the LX-5 Laser Illuminator.

We would also like to thank Mr. G. Reas and Mr. D Brennan for their efforts in developing the DGPS-based tracking system and for Command and Control operations during the field test; the crew of the M/V Big "D" for environmental buoy and target deployment/recovery; Mr. Christian Oats for preparation of the environmental buoy, and Mr. S. Ricard for orchestrating preparations, logistical support, in-flight data collection and post-mission analysis.

We would like to acknowledge guidance and critical review provided by Dr. D. Paskausky during the planning, execution and analysis phases of this experiment; and other personnel from the Coast Guard R&D Center and Analysis & Technology, Inc. who assisted on this project.

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CHAPTER 1
INTRODUCTION

1.1 BACKGROUND

This report documents the U.S. Coast Guard Research and Development (R&D) Center evaluation of night vision goggles (NVGs) for airborne search and rescue (SAR) missions. This evaluation is part of the R&D Center Improvement of Search and Rescue Capabilities (ISARC) Project and used a near-infrared laser to illuminate the targets. Eight experiments were previously conducted to evaluate NVGs for non-illuminated targets: four in Fort Pierce, FL; three in Block Island Sound off the Connecticut/Rhode Island/New York coasts; and one on Canso Bank, Nova Scotia. The target types were 18- and 21-foot small boats, 4-, 6- and 10-person life rafts, and simulated persons-in-the-water (PIWs). The final results of these experiments are documented in reference (1).

During the Spring 1992 NVG experiment in Fort Pierce, the nose light on the aircraft Search and Rescue Unit (SRU), an HH-60J helicopter, was mistakenly left on for a brief period (reference 2). The results for this period indicated that the search light made a significant positive difference in the ability of the SRU to detect targets. At the same time, the laser division of the U.S. Air Force Phillips Laboratories, at Sandia National Laboratories in Albuquerque, New Mexico, was experimenting with the ability of the NVGs to detect ground targets using a near-infrared laser illuminator. Cooperation between the R&D Center and the U.S. Air Force resulted in the development of a laser illuminator to be tested onboard a U.S. Coast Guard HH-60J helicopter for NVG-assisted nighttime SAR missions.

This report is the seventh in a series of reports that provide information to the Coast Guard on the effectiveness of NVGs during SAR missions. Data were collected from operational Coast Guard SRUs for target types that can be expected to be search objects during actual SAR missions. Data were collected and examined to determine the effect of various environmental factors on the NVG-equipped lookout detection performance. For this experiment, analyses were conducted on the illuminated and non-illuminated data sets for which sufficient data were collected.

1.2 SCOPE AND OBJECTIVES

The ISARC project objectives are to improve the detection of SAR-related objects through improved techniques of drift prediction, visual search, electronic search, and search planning. Other objectives are to improve estimates of the probability of search success, to develop improved SAR techniques and equipment, and to improve post-mission analysis.

Specific objectives of this NVG evaluation are to:

1. Compare the detection capabilities of NVGs with and without infrared laser illumination,

2. Determine if further development of laser illumination devices for NVG equipped SAR helicopters is warranted, and

3. Supplement the existing database for non-illuminated NVG searches.

1.3 AN/AVS-6 (ANVIS) NIGHT VISION GOGGLE DESCRIPTION

The ANVIS NVGs shown in figure 1-1 are helmet mounted and are designed for use onboard helicopters. The ANVIS NVGs are used for operating in a broad range of night illumination conditions including starlight and overcast. Two Generation III image intensifier tubes are incorporated into a hinged binocular assembly that can easily be flipped up or down by the aviator. Adjustments for diopter correction, range focus, interpupillary separation, vertical positioning, fore-aft positioning (eye relief), and tilt positioning are also incorporated into the ANVIS NVGs. When in use (down position), the binocular assembly is offset from the eyes so that limited non-NVG peripheral vision is available. The eyes can also be focused beneath the goggles to view instruments and controls. The ANVIS NVGs are limited to a visual acuity of 20/40 and to a 40-degree field of view (FOV), limiting depth perception.

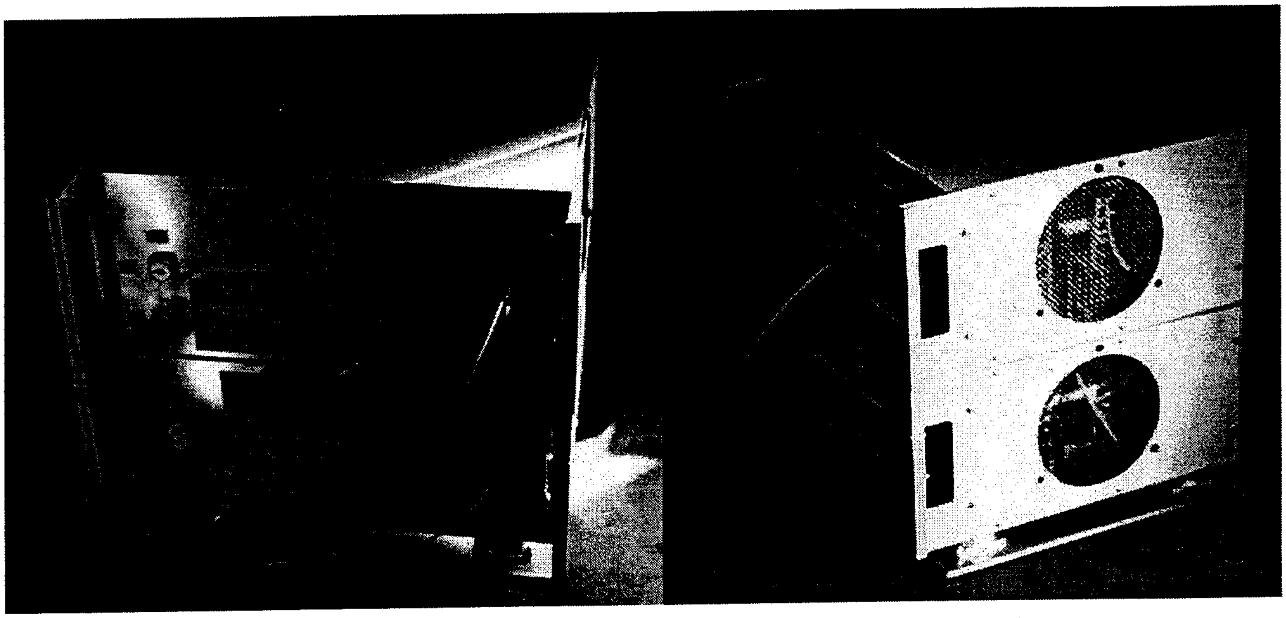
Peak spectral response is achieved between wavelengths of 0.65 and 0.90 microns that includes visible light from yellow through red and a portion of the near-infrared spectrum. Incorporated into the ANVIS is a "minus blue" instrument light filter that filters out wavelengths smaller than 0.625 microns (yellow-green). An automatic brightness control adjusts rapidly to changing illumination conditions.

Figure 1-1. AN/AVS-6 (ANVIS) Night Vision Goggles

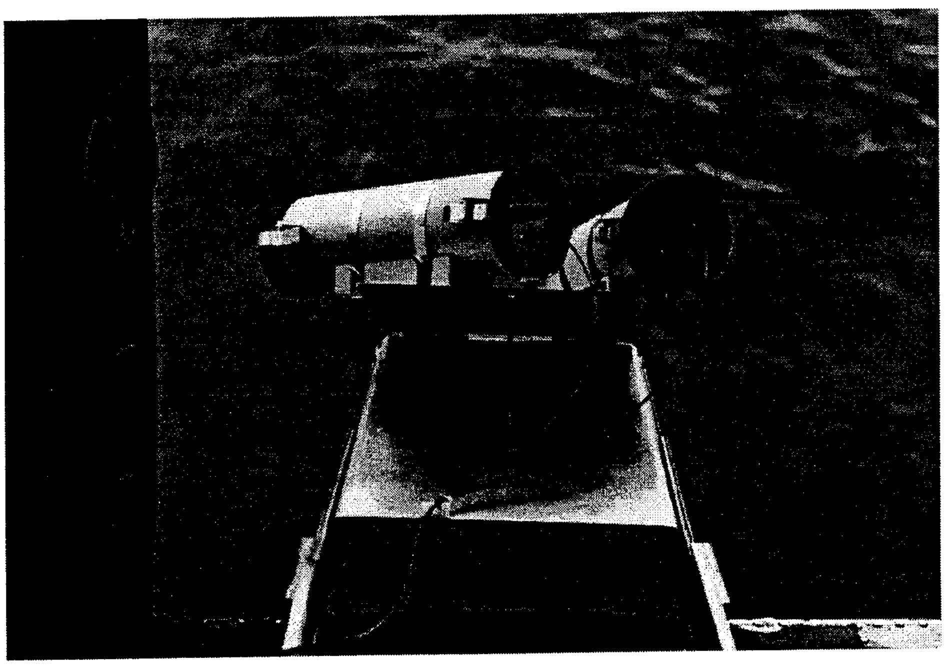
The ANVIS NVGs tested during the R&D Center experiments were manufactured by ITT. Detailed ANVIS specifications and the principles of operation can be found in references 3 and 4.

1.4 NEAR-INFRARED LASER ILLUMINATOR DESCRIPTION

The laser system consisted of two 15-watt (9-watt output), near-infrared (808 nm wavelength) lasers and focusing optics set in two Pelco™ enclosures. The optics were used to spread the beams at an angle of 37.5° (.6545 rad) to create a large, oval-shaped illuminated area on the surface of the water. For the wavelength, power and beam configuration, the eye-safe distance exposure is 0.84 meters for a 10 second exposure to the naked eye and approximately 42 meters (128 feet) for a person using 7x power binoculars. The eye-safe distances for infinite exposure (>30,000 seconds) are 1.5 and 74 meters (7.4 and 227 feet) for naked eye and 7x binocular exposure, respectively. These exposures are direct beam exposure. For diffuse reflection off the atmosphere the laser is safe at all distances. The aircraft altitude for the entire experiment was 300 feet, above the eye safe altitude for any unexpected manned targets that may have been encountered during the flights. Figure 1-2 illustrates the laser configuration mounted onboard the HH-60J helicopter.



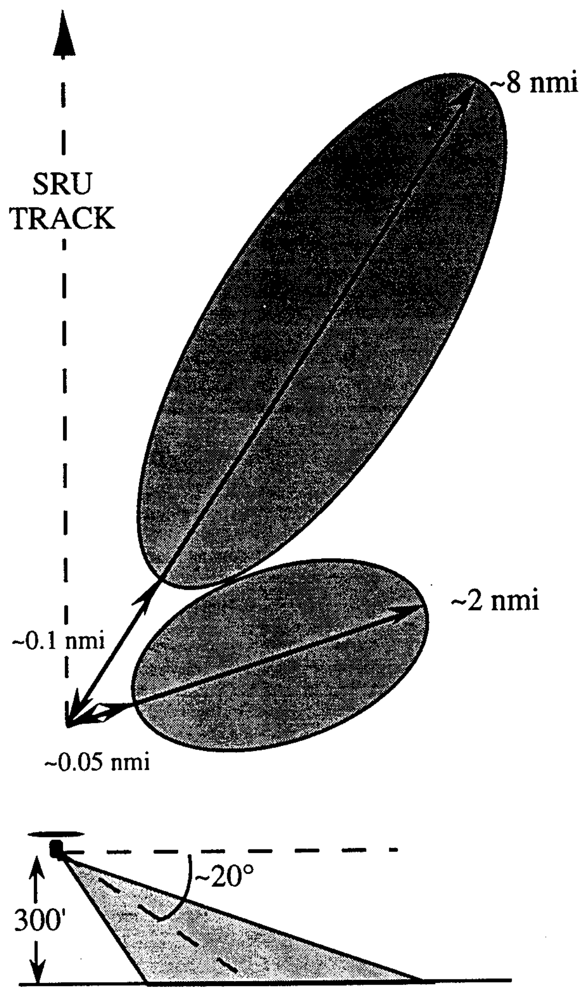
a. Laser Illuminator Power Supplies, Lasers and Fiber Optic Cables



b. Laser Illuminator Lens and Pelco™ Enclosures

Figure 1-2. Laser Illuminator Onboard the HH-60J Helicopter

The laser optics were mounted on a platform that secured the system to the aircraft and retracted into the aircraft during takeoff and landing. The platform was extended approximately two feet from the open helicopter door during each of the searches and allowed the lasers to be tilted down 20° about the aircraft longitudinal axis so that the rear laser illuminated the water surface to a distance of 2 nmi directly out the right side door. Since the platform could only tilt along one axis, the forward laser did not tilt down as far as the rear laser and the forward beam illuminated farther out (approximately 8 nmi) in front of the aircraft. The surface illumination pattern covered a 75° area on the right side of the aircraft from 15° to 90° off the aircraft nose. Figure 1-3 illustrates the surface pattern of the laser illumination. This configuration, while not symmetric, provided the ability to evaluate the detectability of the illuminated targets for different effective intensities.



Note: The patterns are not to scale.

Figure 1-3. Surface Illumination Pattern for the Laser Illuminator at an Altitude of 300 Feet

1.5 EXPERIMENT DESCRIPTION

This experiment was conducted to simultaneously collect detection data from two HH-60J helicopters. One of the helicopters was outfitted with a laser illuminator while the other helicopter, as the experimental control, had no illuminator. The use of two SRUs ensured that essentially the same environmental conditions existed for both illuminated and non-illuminated detection searches. Sections 1.5.1 through 1.5.6 provide the details of the Fall 1994 NVG experiment.

1.5.1 Participants

R&D Center Project and Test Managers arranged for the primary logistics support. R&D Center personnel were responsible for maintaining a liaison between all Coast Guard and contractor participants and for maintaining top-level control of all experiment communications and data collection activities.

The prime contractor for the Coast Guard, Analysis & Technology, Inc. (A&T), developed test plans, provided logistics planning support, installed the Differential Global Positioning System (DGPS) tracking system equipment, coordinated data collection priorities, provided data recorders onboard participating SRUs, and participated in the reduction and analysis of the data.

U.S. Air Force Phillips Laboratories personnel were responsible for developing the laser system and installing it onboard the aircraft. Civilian and U.S. Air Force personnel from Phillips Labs maintained the laser throughout the test period.

Three HH-60J helicopters were assigned to support this experiment. Air Station Cape Cod provided an HH-60J that carried the laser during the entire test period. Air Station Clearwater provided two HH-60Js over the three week test period, each acting, singly, as the experimental control during its respective test period by conducting non-illuminated target searches concurrently with the Cape Cod aircraft.

1.5.2 Exercise Area

The exercise area for this experiment was a 10- by 20-nmi area situated off the coast of Fort Pierce, FL. The center of the area was located at 27°32.6'N, 80°09.0'W along a major axis of 160/340 degrees true. Within this area, SRUs were assigned specific search patterns that varied in

size from a 10- by 12-nmi area for life raft and small boat targets to a 4- by 8-nmi area for PIWs. Figure 1-4 depicts the Fort Pierce exercise area.

An on-shore operations center was established that was equipped with all the computer and communications equipment required to direct data collection activities and record target and SRU position information. This center, known as R&D Control, was located at the Sea Palms Condominiums in Fort Pierce. The position of R&D Control is shown in figure 1-4.

1.5.3 Targets

Three types of targets were used for this experiment. Table 1-1 provides characteristics of the deployed targets. They included 18- and 21-foot small boats, 6- and 10-person life rafts, and simulated PIWs. Figures 1-5 and 1-6 are photographs of the small boats (white). The 21-foot small boats had attached blue bimini tops while the 18-foot small boats had no covering.

Examples of the life-raft targets are shown in figures 1-7 and 1-8. The life rafts were deployed without ballast and were anchored. Retroreflective tape was applied to each raft in accordance with Safety of Life at Sea (SOLAS) specifications.

The simulated PIW targets (figure 1-9) were department store-style mannequins that were outfitted with type I personal flotation devices (PFDs) with retroreflective tape and no attached light. The PIWs were ballasted to maintain a realistic attitude in the water.

Table 1-1. NVG Target Descriptions

TARGET	DESCRIPTION	DIMENSIONS length x beam x freeboard (feet)	PRINCIPAL MATERIAL
Small boats	Rectangular white skiff w/console	18 x 7.5 x 1.6	Fiberglass
	Rectangular white skiff w/console, blue canvas bimini, and blue bow shelter canvas	21 x 7.7 x 1.6	
Six-person life raft	Switlik w/orange canopy	8.6 x 5.8 oval x 3.8 ht.	Rubber/ fabric
Ten-person life raft	Switlik w/orange canopy	7.8 x 10.8 oval x 4.2 ht.	
PIW	Department store style mannequin w/type I PFD and retroreflective tape	1.5 x 1 x 1	Plastic

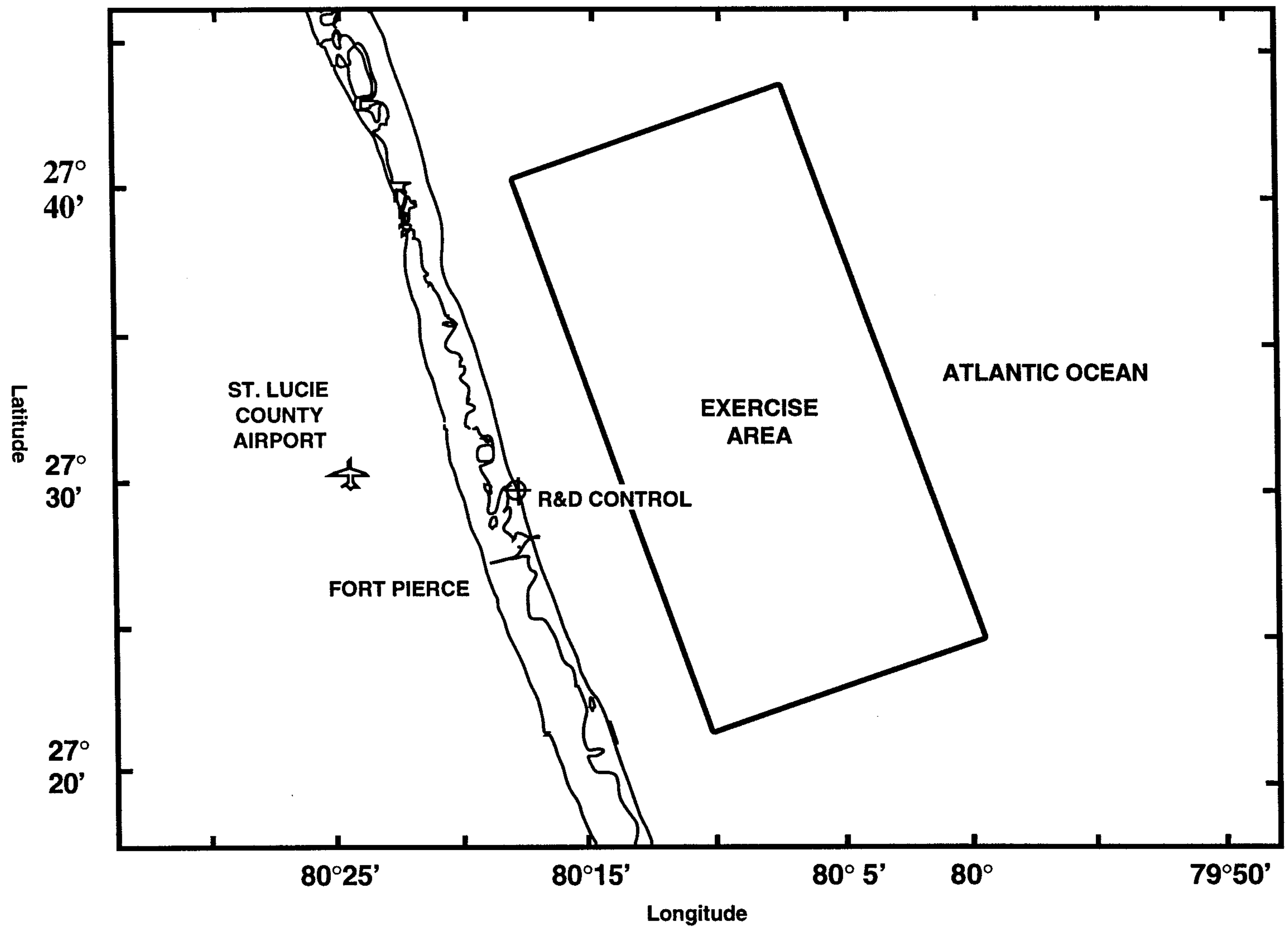


Figure 1-4. Fort Pierce Exercise Area

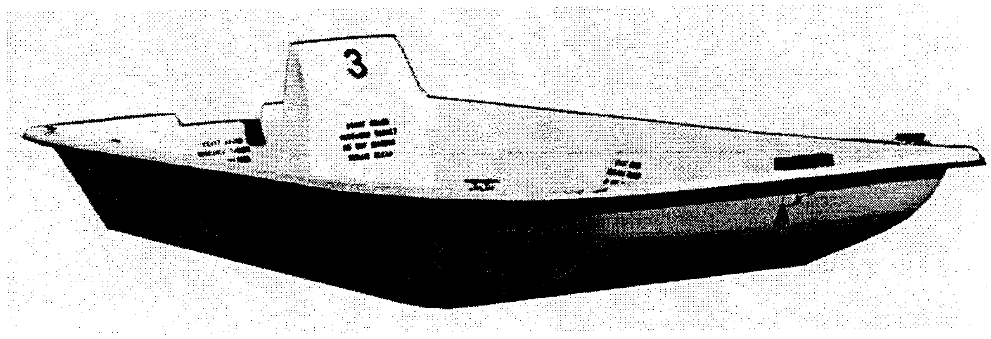


Figure 1-5. Eighteen-Foot Small Boat Target

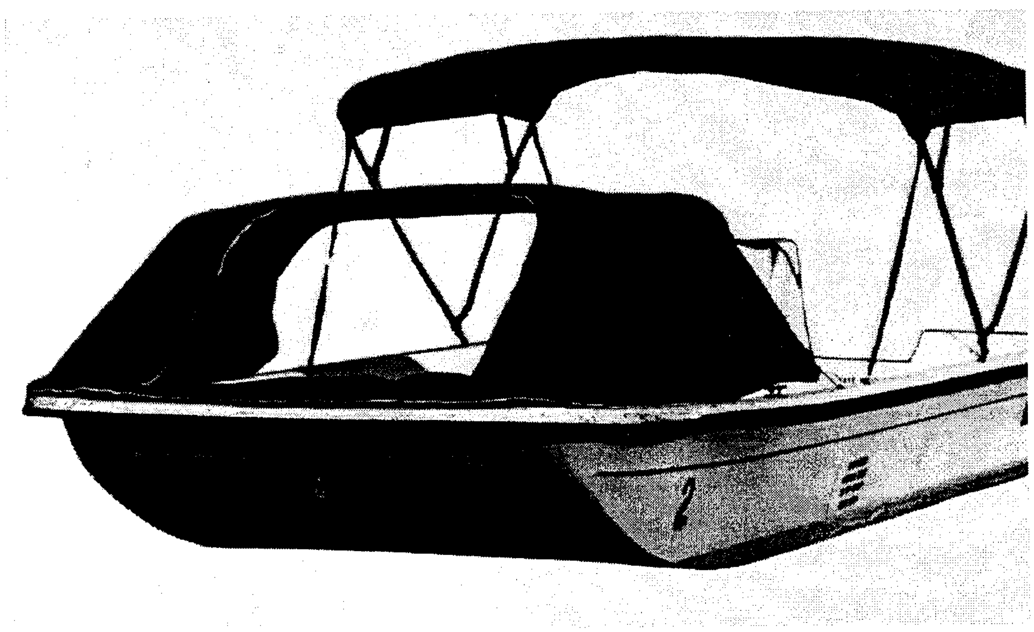


Figure 1-6. Twenty-One Foot Small Boat Target With Canvas

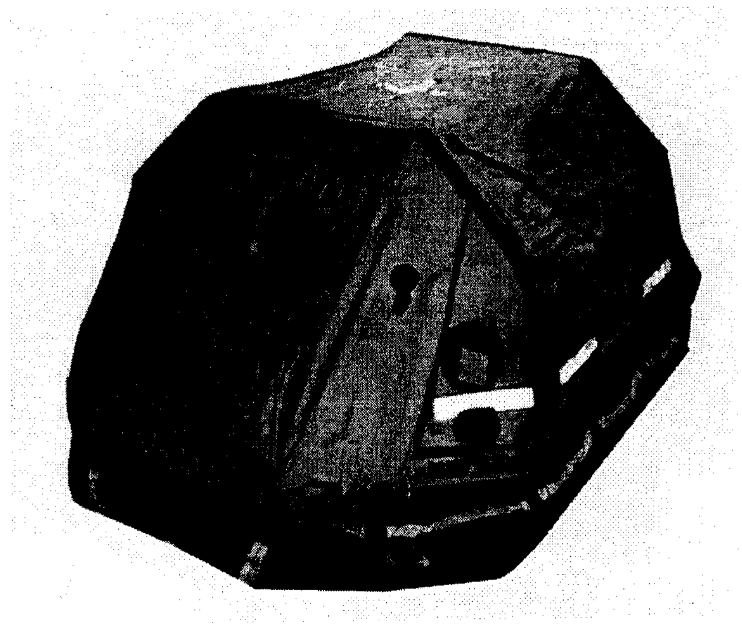


Figure 1-7. Six-Person Life-Raft Target With Retroreflective Tape

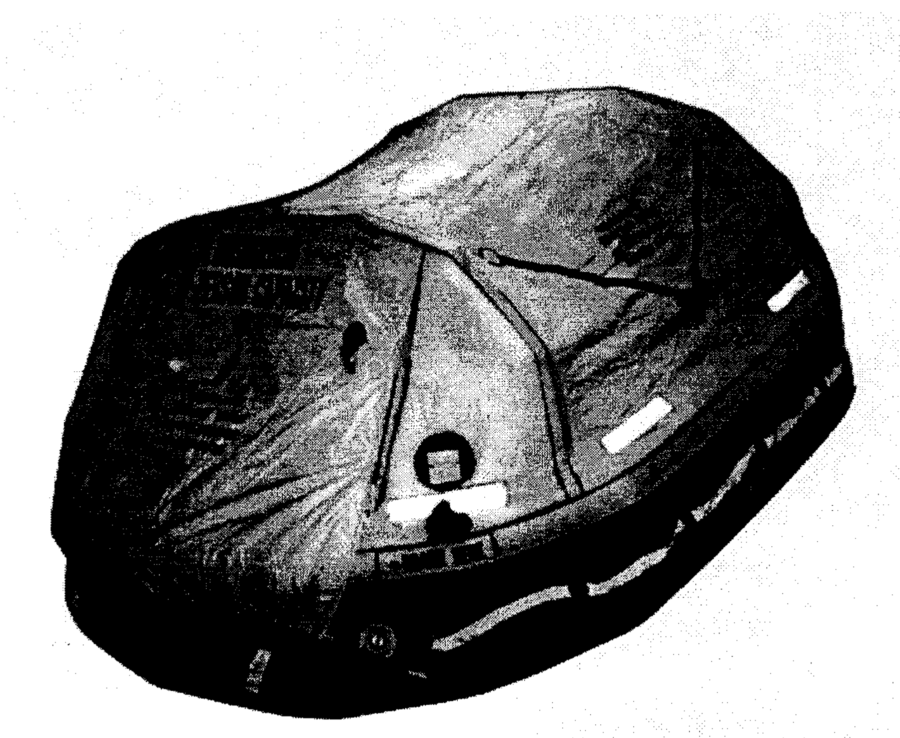


Figure 1-8. Ten-Person Life-Raft Target With Retroreflective Tape

Figure 1-9. PIW Target with Retroreflective Tape

1.5.4 Lookout Positions

The HH-60J helicopters each carried four NVG-equipped crew members. The crew included the pilot and copilot who searched out of the cockpit windows, the avionics operator who searched through an open cabin window and the flight mechanic who searched through the open cabin door. During the experiment, each detection was logged with the crew position of the person making the detection.

1.5.5 Experiment Design and Conduct

Detection data were obtained by conducting operationally realistic NVG searches using parallel search (PS) and creeping line search (CS) patterns, as defined in reference 5. Track spacing and search area dimensions were chosen to provide the maximum number of target detection opportunities at a variety of lateral ranges without producing multiple target distractions for the crew. The helicopters used a 1.0-nmi track spacing while searching for life rafts and small

boats and a 0.5-nmi track spacing while searching for PIWs. Figure 1-10 is an example of search instructions that were provided to participating SRUs during the experiment. The helicopters searched at 300-feet and used 90-knot ground speed for small boats and life rafts and 80-knot ground speed for PIWs.

Helicopter crews were composed of personnel from the normal complement of the participating air stations. All of the pilots had considerable experience with NVGs. The helicopter crew members, with one exception, had little or no NVG experience. These experience levels are representative of what can be expected at U.S. Coast Guard SAR facilities. The crews were encouraged to maintain motivational levels that would prevail during an actual SAR mission and to conduct operations as they would under normal circumstances, with the exception that the SRU did not divert from the assigned search pattern for the purpose of confirming target sightings. Target confirmation was made through post-experiment data analysis. Helicopter crew members wore the ANVIS NVGs while searching and used radar to avoid other aircraft and severe weather.

Targets were anchored within the search area each night and were seldom moved until recovered. SRU crews were told the target type but never the location or exact number. Crews were told to report any sighting of an object that could conceivably be one of the search targets.

Each night, a data recorder from the A&T field team accompanied each SRU to log target detections, environmental conditions, human factors data and crew comments. Crew information was recorded on the SRU Information Form (figure 1-11). Target detections, crew comments and general observations were recorded on the NVG Detection Log (figure 1-12).

When a target was sighted, lookouts immediately relayed the target's relative bearing (as a "clock position"), estimated range (in yards, nautical miles, or distance to the horizon) and a brief description of its appearance to the data recorder. The data recorder then logged the detection time, relative bearing, SRU heading, range, moon visibility, lookout position and crew remarks. Times were all synchronized to GPS time. The data recorders did not assist in the search effort in any way.

Area Plan #4

Parallel Search

Commence Search Point: 27° 35.6" N 080° 15.8" W

Datum: 27° 32.0" N 080° 09.0" W

Length: 12.00 nmi Width: 10.00 nmi Orientation (major Axis): 160°T

Track Spacing: 1.0 nmi SRU Speed: 90 knots

Direction of Creep: 070°T

Corner Pt #1 27°28.0"N - 080°01.3"W Corner Pt #2 27°24.6"N - 080°11.9"W

Corner Pt #3 27°39.3"N - 080°06.0"W Corner Pt #4 27°35.9"N - 080°16.6"W

Total Track Length: 119.0 nmi.

Leg #	Starting Position		Course True	Leg Dist (nmi)	Tot Dist	Leg Time	Total Time
1	27°35.6"N	080°15.8"W	160°T	11.0	11.0	00:07:19	00:07:19
2	27°25.2"N	080°11.6"W	070°T	01.0	12.0	00:00:40	00:08:00
3	27°25.6"N	080°10.5"W	340°T	11.0	23.0	00:07:19	00:15:19
4	27°35.9"N	080°14.8"W	070°T	01.0	24.0	00:00:40	00:16:00
5	27°36.3"N	080°13.7"W	160°T	11.0	35.0	00:07:19	00:23:19
6	27°25.9"N	080°09.5"W	070°T	01.0	36.0	00:00:40	00:24:00
7	27°26.3"N	080°08.4"W	340°T	11.0	47.0	00:07:19	00:31:20
8	27°36.6"N	080°12.7"W	070°T	01.0	48.0	00:00:40	00:32:00
9	27°36.9"N	080°11.6"W	160°T	11.0	59.0	00:07:19	00:39:20
10	27°26.6"N	080°07.4"W	070°T	01.0	60.0	00:00:40	00:40:00
11	27°27.0"N	080°06.3"W	340°T	11.0	71.0	00:07:19	00:47:19
12	27°37.3"N	080°10.5"W	070°T	01.0	72.0	00:00:40	00:47:59
13	27°37.6"N	080°09.5"W	160°T	11.0	83.0	00:07:19	00:55:19
14	27°27.3"N	080°05.2"W	070°T	01.0	84.0	00:00:40	00:55:59
15	27°27.6"N	080°04.2"W	340°T	11.0	95.0	00:07:19	01:03:19
16	27°38.0"N	080°08.4"W	070°T	01.0	96.0	00:00:40	01:03:59
17	27°38.3"N	080°07.4"W	160°T	11.0	107.0	00:07:19	01:11:19
18	27°28.0"N	080°03.1"W	070°T	01.0	108.0	00:00:40	01:11:59
19	27°28.3"N	080°02.1"W	340°T	11.0	119.0	00:07:19	01:19:19

Figure 1-10. SRU Search Instructions

SRU INFORMATION FORM

DATE ________________ DGPS TRANSCEIVER CODE ________________

SRU TYPE ______________ SERIAL NUMBER ______________

COAST GUARD COMMAND _________________________

NAVIGATION INPUTS USED
(check all that apply)

TACAN _____ VOR/DME ____ INS ____ LORAN-C _____ RDF ____ RADAR ____ DEAD REC. ____ GPS__

CREW NAMES

POSITION	NAME	RANK	FUNCTION	EXPERIENCE W/NVG (hr)
A				
B				
C				
D				
E				
F				

SKETCH (show positions)

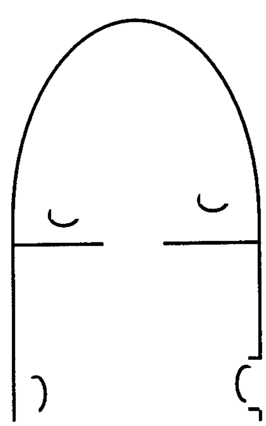


Figure 1-11. SRU Information Form

NVG DETECTION LOG

DATE__________

AIRCRAFT NO. __________ SEARCH START TIME__________ SEARCH __________

TRANSCEIVER NO. __________ SEARCH END TIME __________ SPEED__________

AIRCRAFT EXT. LIGHTING__________ SEARCH DURATION__________ ALTITUDE__________

EVENT/ DETECTION NO.	TME (HH:MM:SS)	SIGHTING RANGE (rel. to horiz)	RELATIVE BEARING (clock)	MOON VISIBLE? (Y/N)	SRU HEADING (deg T or M)	LOOKOUT/ POSITION	REMARKS (visibility, precip, fog, target appearance, etc.)

RECORDER:__________

Figure 1-12. Night Vision Goggle Detection Log

On-scene environmental conditions were recorded by the aircraft data recorder. These conditions consisted of general weather descriptions such as rain, cloud cover, white caps, cloud ceiling and visibility. The MINIMET™ environmental buoy was used to provide additional environmental data. The buoy relayed information to the R&D Control facility three time per hour over a UHF-FM data link. This information was also stored as a backup in an internal memory onboard the buoy. Figure 1-13 is a sample of the data messages received from the MINIMET™ buoy. Two of the three hourly messages relayed wind data, water temperature and air temperature at 10 minutes and 40 minutes past the hour. Also, at 10 minutes past the hour, wave spectrum data including significant wave height (H_S) were relayed. The buoy was the preferred environmental data source when duplicate sets of information were available.

Date: 10/19/94 Time 00:10 Position: 27-32°34"N / 80-09°08"W

Z130MET 941019 00 10 065 082 067 257 174 081 276 258 166 2732.5753,N, 08009.1419,W 10184 282 225 9999

Voltage: 16.6
Wind Speed: 12.6 Wind Dir: 082 Max. Wind Gust: 15.7
Water Temp 27.6 C Air Temp: 25.8 C
Wave Height: 0.0 Wave Period: 0.0.

Date: 10/19/94 Time 00:10 Position: 27-32°34"N / 80-09°08"W

Z130WAV 941019 00 062 085 085 105 096 137 176 216 255 239 227 213 226 06 202 225 190 185 183 186 191 190 169 177 173 178 173 173 172 035

Voltage: 16.6
Wind Speed: 12.6 Wind Dir: 082 Max. Wind Gust: 15.7
Water Temp 27.6 C Air Temp: 25.8 C
Wave Height: 1.6 Wave Period: 11.9

Date: 10/19/94 Time 00:40 Position: 27-32°34"N / 80-09°08"W

Z130MET 941019 00 10 065 082 067 257 174 081 276 258 166 2732.5753,N, 08009.1419,W 10184 282 225 9999

Voltage: 16.6
Wind Speed: 12.6 Wind Dir: 082 Max. Wind Gust: 15.7
Water Temp 27.6 C Air Temp: 25.7 C
Wave Height: 0.0 Wave Period: 0.0

Figure 1-13. Sample MINIMET™ Data Message

1.5.6 Tracking and Reconstruction

Target locations and SRU positions were monitored using a DGPS tracking system. The tracking system consisted of the GPS satellite network, a differential GPS transmitter, an R&D Center designed DGPS transceiver, and a receiving station. The differential transmitter was set up using the Jupiter Inlet ADF broadcast station. The DGPS tracking system also consisted of a Starlink differential signal receiver and a Maxon VHF transceiver with a PacComm internal packet modem. The tracking system onboard the aircraft used the existing aircraft GPS and ADF antennas. The tracking system contained a portable computer that stored position data as it was transmitted to the R&D Control receiving station. Each of the SRUs and the workboat had a transceiver installed. Figure 1-14 illustrates the setup of the onboard tracking system.

The receiving station consisted of a VHF receiver that was linked to a computer containing software to display and store the incoming data. The equipment was set up to automatically receive and record positions every 30 seconds.

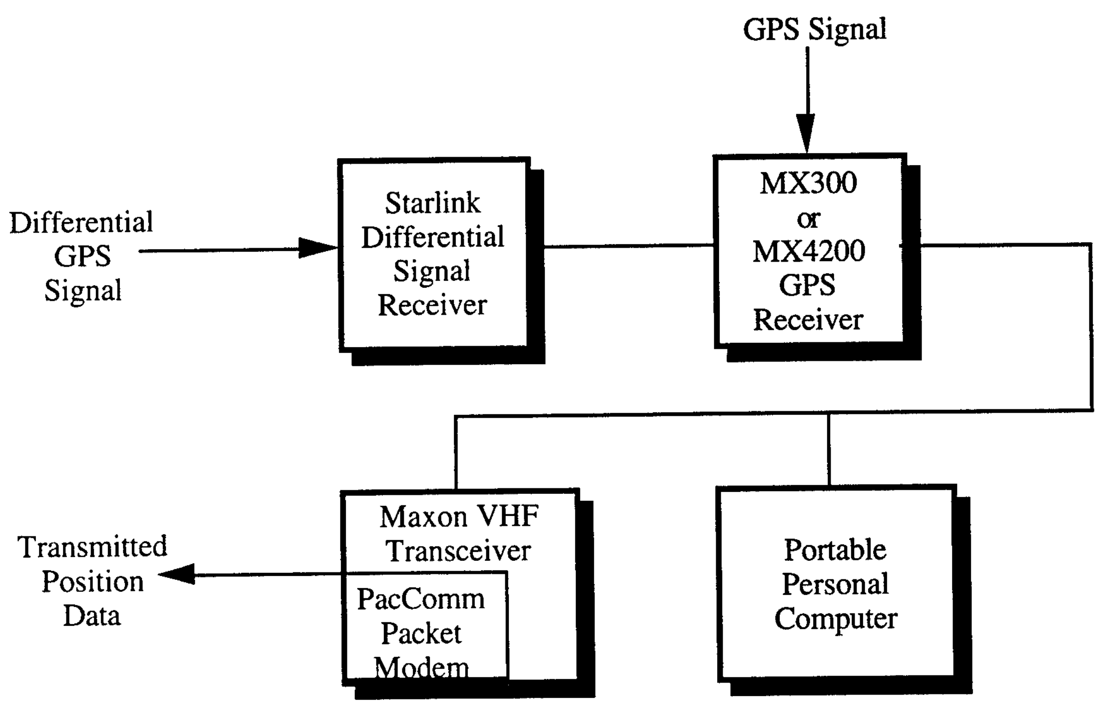


Figure 1-14. Onboard Tracking System Setup

Search tracks and target locations were reconstructed using the recorded target and SRU position data. An accurate representation of the reconstruction was presented on both a computer screen and a hard-copy printout. The SRU position data, each associated with a time mark, were used with the NVG Detection Logs to determine which targets were detected and which were missed during each leg of an SRU search pattern. Figure 1-15 depicts a typical HH-60J executed search. Normally, a target was considered an opportunity for detection on any given search leg if the SRU passed it within a distance of 1.5 times the maximum lateral range of detection. This rule was used successfully for the previous NVG experiments and produced sufficient data to identify an asymptotic limit to the NVG lateral range curve (discussed in section 1.6) without adding a large number of meaningless (i.e., very long-range) target misses to the data set.

When a logged target report was correlated with the position of a particular target, it was considered a detection. Analysts performed this correlation by using the time of a given detection in the NVG Detection Log to locate the SRU along the trackline. The range and bearing data for the reported detection were then compared to target positions on the tracking system plot and a detection/nondetection determination was made. A miss was recorded for any target detection opportunity that could not be correlated with a logged detection report. An accurate lateral range measurement was then recorded for each detection or miss from the closest point of approach (CPA) for each target on each leg. These detections and misses, along with associated search parameters and environmental conditions, were compiled into computer data files for analysis. Data files for this experiment are listed in appendix A of this report.

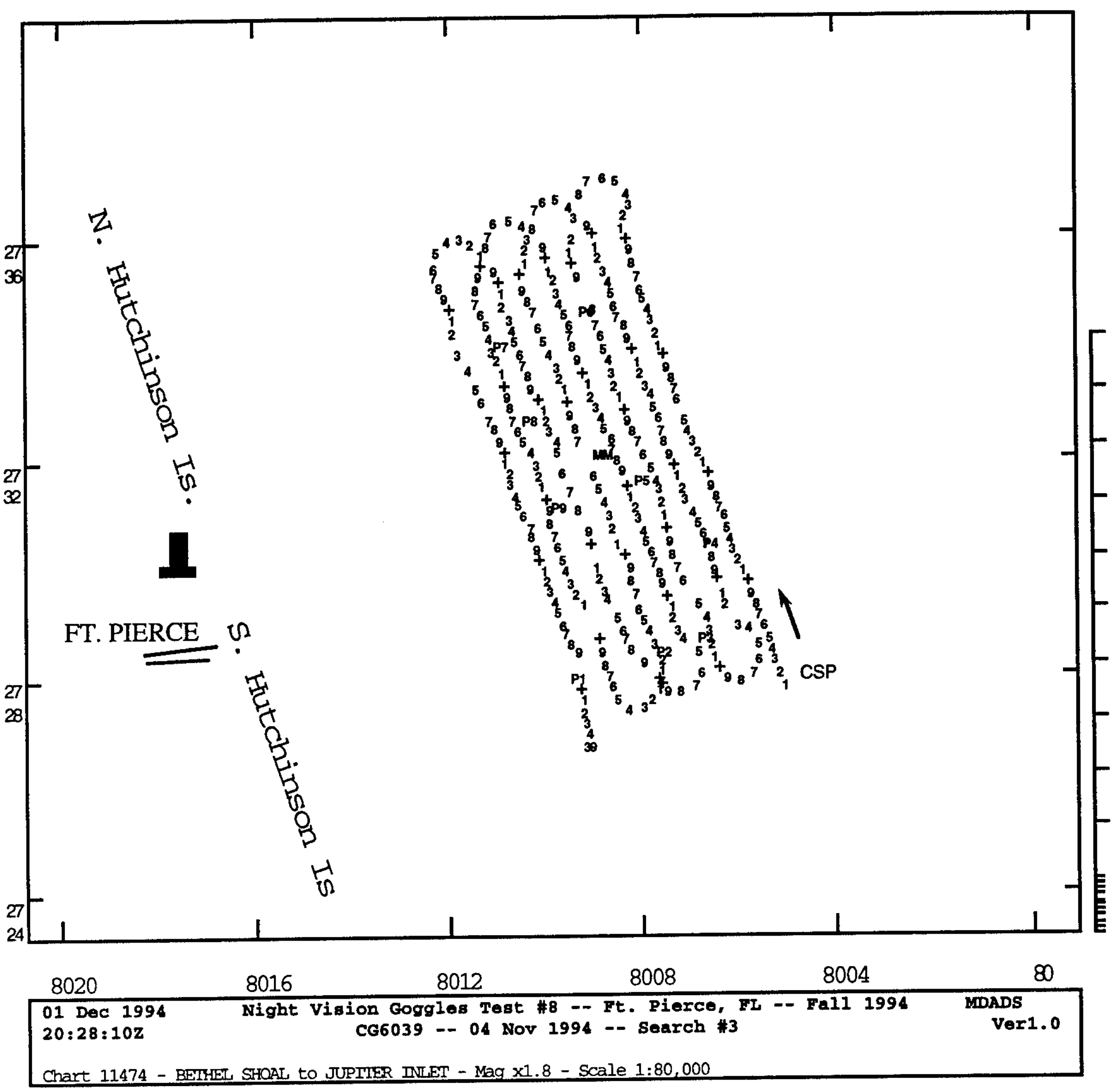


Figure 1-15. Example of HH-60J Executed Search Pattern

1.5.7 Range of Parameters Tested

A total of 28 potentially significant search parameters for each valid target detection opportunity were used in the analysis. These parameters were used directly or calculated from the 31 parameters recorded during the experiment (see Appendix A) The parameters can be broadly classified as relating to the target, the SRU, the environment, ambient light and human factors. The search parameters and their units of measure are as follows.

PARAMETER	UNIT OF MEASURE (See Appendix A for the description of the numbers in parentheses)
TARGET	
1/2. Target Type/Target Subtype	Life Rafts (2): with retroreflective tape (-1) Small Boats (1): 18-foot without canvas (0) 21-foot with canvas (1) PIW (3): with retroreflective tape (0)
3. Lateral Range*	Nautical Miles
4. Target Relative Bearing	Clock Bearing (1 - 12)
SRU	
5. Laser-Equipped	(0) helicopter not laser-equipped (1) helicopter laser-equipped
6. Search Speed	Knots
7. Search Altitude	Feet
ENVIRONMENT	
8. Precipitation Level	(0) none (1) light (2) moderate (3) heavy
9. Visibility	Nautical Miles
10. Wind Speed	Knots
11. Cloud Cover	Tenths of sky obscured
12. Significant Wave Height	Feet
13. Whitecap Coverage	(0) none (1) light (2) heavy

*See section 1.6.1 for definition.

PARAMETER (Cont'd)	UNIT OF MEASURE (Cont'd)
14. Relative Wave Direction	(1) Wave fronts traveling into (-1) away from (0) across line-of-sight to target at SRU CPA† (if target missed) or at time of detection
15. Relative Humidity	Percent
16. Air Temperature	Degrees Celsius
17. Water Temperature	Degrees Celsius
AMBIENT LIGHT	
18. Relative Azimuth of Artificial Light	(1) Light source located along (-1) away from (0) across line-of-sight to target at SRU's CPA† (if target missed) or at time of detection
19. Artificial Light Level	(0) rural (1) suburban (2) urban
20. Moon Elevation	Degrees above or below the horizon
21. Moon Visible (from SRU)	(1) yes (0) no
22. Relative Azimuth of the Moon	(1) moon (visible or not) located along (-1) away from (0) across line-of-sight to target at SRU's CPA† (if target missed) or at time of detection
23. Moon Phase	Phase in tenths
24. Laser	(1) Laser illuminated (0) Not illuminated
HUMAN FACTORS	
25. Lookout Position‡	Location onboard SRU
26. Lookout ID	Individual identifier
27. Lookout NVG Experience†	Hours
28. Time on Task	Hours (actually searching)

† See section 1.6.1
‡ Items 24 and 25 were recorded for detections only

A total of 23 individual lookouts participated onboard the helicopters during the Fall 94 NVG experiment. NVG experience ranged from 0 to 650 hours. Time-on-task ranged up to 4.4 hours on the longest searches conducted.

The range of environmental and moon parameters encountered is summarized in table 1-2.

Table 1-2. Range of Environmental and Moon Parameters Encountered

PARAMETERS		TARGET TYPE		
		BOATS	RAFTS	PIWS
ENVIRONMENTAL	Time on Task (hrs)	0.0 to 3.9	0.0 to 4.4	0.1 to 6.0
	Precipitation Level	0	0 to 1	0
	Visibility (nmi)	10 to 15	5 to 15	10 to 15
	Wind Speed (knots)	6.0 to 14.6	.9 to 13.6	4.0 to 12.6
	Cloud Cover	.1 to .2	.1 to .6	.2 to .8
	Significant Wave Ht. (ft)	2.3 to 4.6	2.6 to 5.2	2.0 to 3.3
	Whitecap Coverage (0, 1, 2)	0 to 1	0 to 1	1
	Relative Humidity (percent)	65 to 95	54 to 95	90 to 95
	Air Temp. (deg C)	25.5 to 27.0	21.7 to 25.7	25.2 to 26.7
	Water Temp. (deg C)	26.2 to 27.0	25.5 to 27.5	26.4 to 27.5
MOON	Elevation (degrees)	-58 to 55	-48 to 76	-67 to 38
	Phase	.2 to .8	0 to 1	.1 to .6

1.6 ANALYSIS APPROACH

1.6.1 Measure of Search Performance

Sweep width (W), a single-number summation of a more complex range/detection probability relationship, is the primary performance measure used by SAR mission coordinators to plan searches. Because this NVG evaluation was intended to support improved Coast Guard SAR mission planning, sweep width was chosen as the measure of search performance to be developed during data analysis. Mathematically,

$$W = \int_{-\infty}^{+\infty} P(x)dx$$

where

W = Sweep Width,

x = Lateral range [Closest point of Approach (CPA)] to targets of opportunity (see figure 1-16), and

P(x) = Target detection probability at lateral range x.

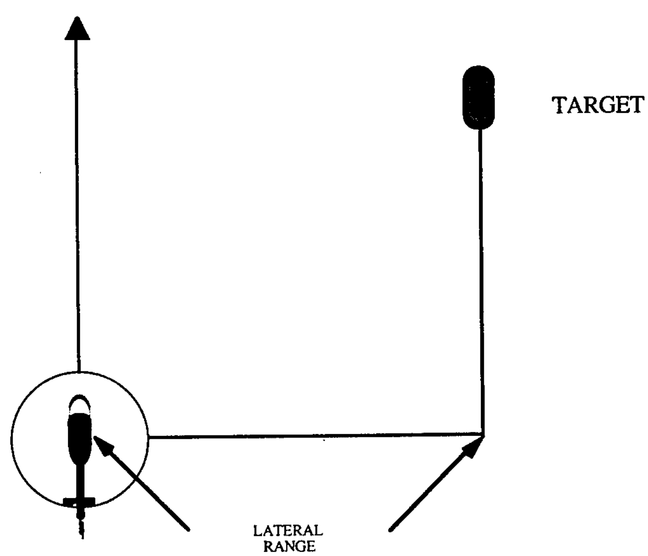


Figure 1-16. Definition of Lateral Range

Figure 1-17 shows a typical P(x) curve as a function of lateral range. In this figure, x is the lateral range of detection opportunities.

Conceptually, sweep width is the numerical value obtained by choosing a value of lateral range that is less than the maximum detection distance such that scattered targets that might be detected beyond the chosen value of lateral range are equal in number to those that might be missed that are closer than the chosen value of lateral range. Figure 1-18 (a and b) illustrates this concept of sweep width. The number of targets missed inside the distance W is indicated by the shaded portion near the top middle of the rectangle (area A); the number of targets sighted beyond the distance W out to maximum detection range (MAX R_D) is indicated by the shaded portion at each end of the rectangle (areas B). Referring only to the shaded areas, sweep width is defined when the number of targets missed equals the number of targets sighted (area A = sum of areas B). A detailed mathematical development and explanation of sweep width can be found in reference 6.

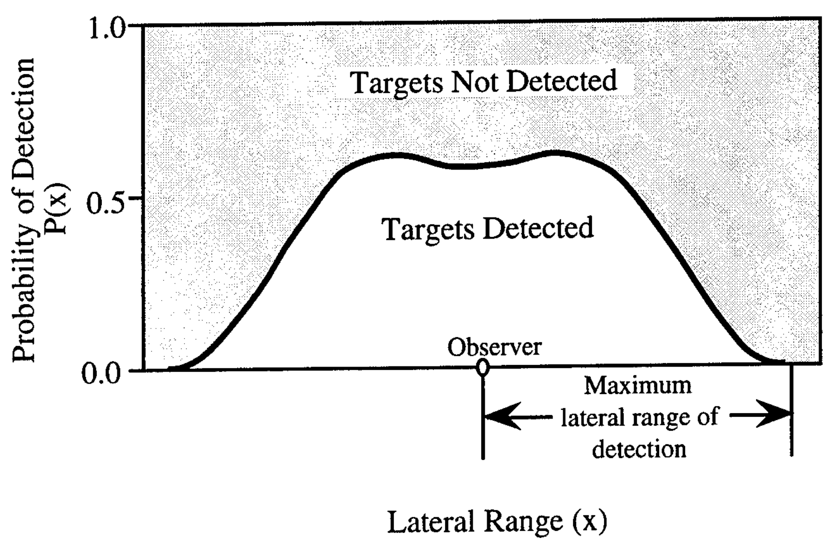


Figure 1-17. Relationship of Targets Detected to Targets Not Detected

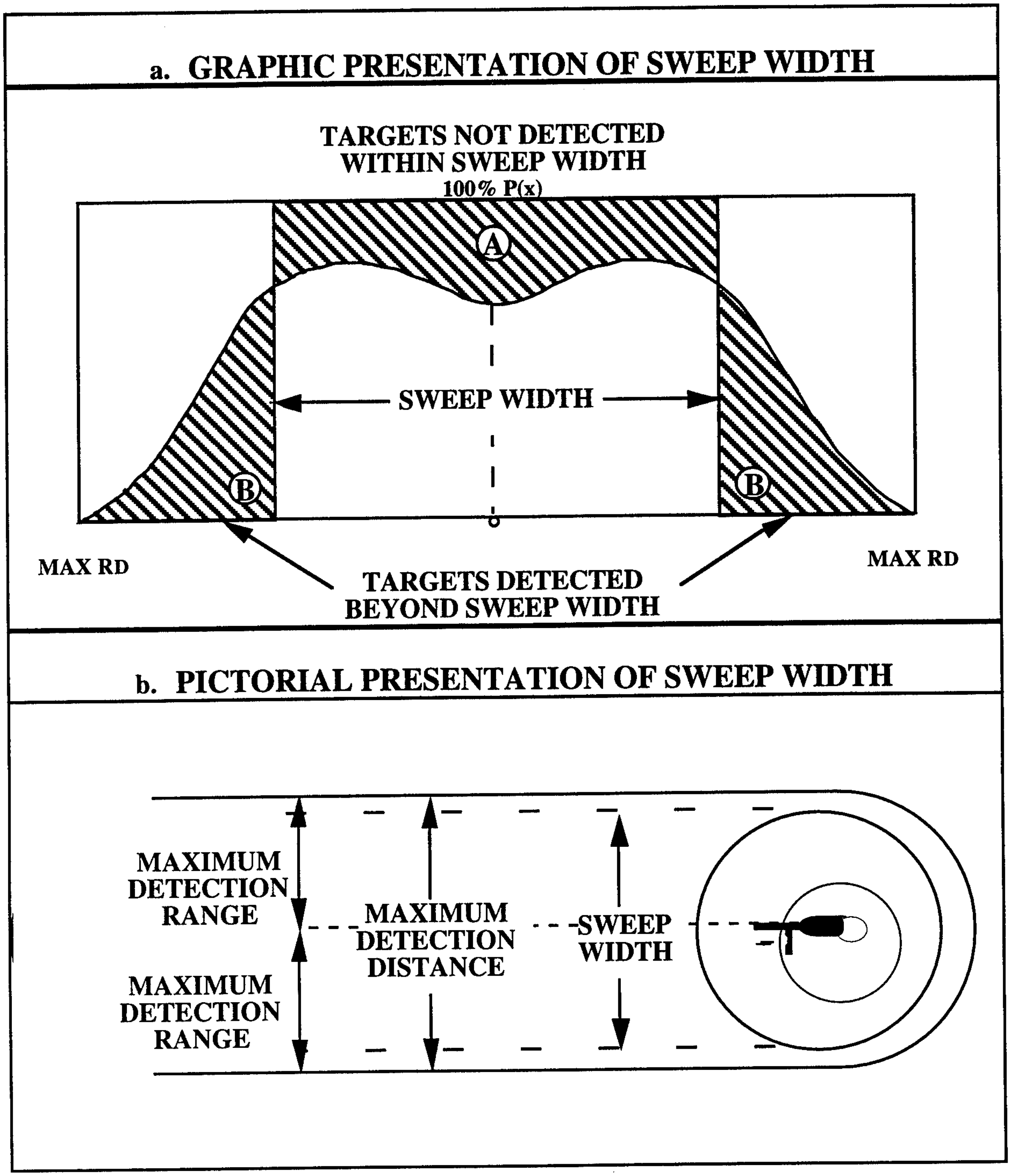


Figure 1-18. Graphic and Pictorial Presentation of Sweep Width

1.6.2 <u>Analysis of Search Data</u>

The data were analyzed to primarily determine the effects of near-infrared laser illumination during NVG searches for the target types tested. Also determined were the influence of other search parameters (see section 1.5.7), the NVG sweep width estimates for various combinations of significant parameters, and any guidance concerning laser-assisted NVG searches.

1.6.2.1 Development of Raw Data

After each experiment, the tracking system plots and NVG detection logs were used (as described in section 1.5.6) to determine which SRU/target encounters were valid detection opportunities and which of those opportunities resulted in successful target detections by the SRUs. The analyst listed each target detection opportunity on a raw data sheet along with a detection/miss indicator. Values for the 27 other search parameters listed in section 1.5.7 were obtained for each listed detection opportunity by consulting appropriate logs and environmental data buoy messages. A separate raw data sheet was completed for each search conducted by each SRU. The contents of these raw data sheets were entered into computer data files on a Macintosh Quadra 840AV computer using spreadsheet software and then stored on magnetic disk. A separate data file was constructed for each SRU for each night it participated in data collection. Hardcopies of the Fall 1994 NVG data files are provided in appendix A of this report. Data from earlier experiments can be found in reference 1. One data file was created for each SRU/target type combination to be evaluated. These raw data files served as input to all subsequent data sorting and statistical analysis routines used for this evaluation.

1.6.2.2 Data Sorting and Statistics

Once the raw data files were entered into the computer and verified to be correct, basic statistics were obtained to characterize the data sets. A commercial statistics and graphics software package, SYSTAT from SDSS, Inc. was used to perform this phase of the data analysis.

Various SYSTAT routines were used to produce simple statistics, histograms, and scatter plots showing the range of search parameter values and the combinations present in each data set. The minimum, maximum, mean, and standard deviation values for each search parameter contained in the data sets were obtained to determine the range of search conditions represented in

each data set. Histograms showing the distribution of values for various parameters of interest were obtained to determine which search conditions were well represented within each data set and which were not. Scatter plots of combinations of search parameters represented in each data set were also produced.

After the data sets were characterized in this manner, logistic multivariate regression analysis was used to determine which search parameters exerted a significant influence on NVG detection performance and to develop lateral range curves from which NVG sweep widths could be computed.

1.6.2.3 LOGIT Multivariate Regression Model

Logistic multivariate regression models have proven to be appropriate analysis tools for fitting U.S. Coast Guard visual search data where the dependent variable is a discrete response (e.g., detection/no detection). The detection data from this NVG evaluation were analyzed using a commercially available software package from SDSS, Inc. called LOGIT. LOGIT is an add-on module to the SYSTAT standard statistical analysis and graphics software package.

The LOGIT regression model is useful in quantifying the relationship between independent variables, x_i, and a probability of interest, R (in this case the probability of detecting a target). The independent variables can be continuous (e.g., range, wave height, wind speed) or discrete (e.g., moon visible or not using a 1 or 0). The logistic regression model has proven to be an effective means of identifying statistically significant search parameters and of quantifying their influence on the target detection probability versus lateral range relationship. This functional relationship, commonly referred to as the lateral range curve, provides a basis for computing sweep widths.

The equation used in the logistic regression model for target detection probability is

$$R = \frac{1}{1 + e^{-\lambda}}$$

where

R = target detection probability for a given searcher/target encounter

λ = $a_0 + a_1 x_1 + a_2 x_2 + a_3 x_3 + ... + a_n x_n$

a_i = fitting coefficients (determined by computer program)

x_i = independent variable values

The method of maximum log-likelihood is employed in the logistic regression model to optimize values of the coefficients a_i. A detailed theoretical development of the logistic regression analysis methodology is given in reference 7.

A logistic regression model has the following advantages over other regression models and statistical methods.

1. The logistic regression model implicitly contains the assumption that $0 \leq R \leq 1.0$; a linear model does not contain this assumption unless it is added, significantly increasing the computational load.

2. The logistic regression model is analogous to normal-theory linear models; therefore, analysis of variance and regression implications can be drawn from the model.

3. The logistic regression model can be used to observe the effects of several independent or interactive parameters that are continuous or discrete.

4. A regression technique is better than nonparametric hypothesis testing, which does not yield quantitative relationships between the probability in question and the values of independent variables.

The primary disadvantage of a logistic regression model is that for the basic logistic regression models, the dependent variable (R) must be a monotonic function of the independent variables. This limitation can sometimes be overcome by employing appropriate variable transforms.

The LOGIT software (reference 8) uses the maximum log-likelihood method to fit a logistic curve to response data that can be broken down into discrete categories and to determine the statistical influence of various independent explanatory variables.

The LOGIT regression model was used interactively with each data set to arrive at a fitting function that contained only those search parameters found to exert a statistically significant (at the 90 percent confidence level) influence on the target detection response. These fitting functions

were then solved for representative sets of search conditions to generate lateral range curves. NVG sweep widths were computed from these lateral range curves.

1.6.2.4 Sweep Width Calculations

Sweep width, defined in section 1.6.1, is the measure of search performance used by U.S. Coast Guard search planners. Mathematically, the value of W is determined by computing the area under the lateral range curve. For each target type, data subsets corresponding to significant variable grouping were analyzed and when possible, the sweep width was calculated from the integral of the curve as described in section 1.6.2.3. These subsets reflected distinct sets of search conditions.

The preceding analysis procedure and the subsequent process of generating lateral range curves and computing sweep widths are illustrated in the following example using the data set for life raft searches.

STEP 1: Identification of Data Subsets. LOGIT analysis of the life raft data set indicated that in addition to lateral range, moon visibility (MOONVIS) and laser illumination (LASER) also exerted a statistically significant influence on target detection probability. Since MOONVIS and LASER were both binary variables, the life raft data set was separated by both variables into four separate data subsets and each MOONVIS/LASER combination was analyzed further to show that the laser was not significant when the moon was visible. In the event that a continuous variable such as windspeed was identified as significant, further analysis of the variable effects would have been conducted to possibly find a breakpoint by which to separate the data set into wind subsets. The data sets that resulted were the following: MOONVIS=1; MOONVIS=0 and LASER=0; and MOONVIS=0 and LASER=1.

STEP 2: Generation of Lateral Range Curves. Two lateral range curve equations were generated by using the LOGIT-generated estimate for the scalar coefficient for lateral range. For a continuous significant variable, the mean value for the data subset would have been used along with the corresponding coefficient for that subset. This process yielded distinct plots of lateral range versus target detection probability, one for each combination of search parameters identified in step 1 above.

STEP 3: Calculation of Sweep Widths. Sweep width values were calculated for both sets of search conditions by integrating the applicable LOGIT expressions for target detection probability over the limits 0 to 4 nmi. The integral of the two-choice LOGIT function given in section 1.6.2.3 is:

$$A = \frac{1}{a_1} \ln\left(1 + e^{a_1 x_1 + c}\right) \Bigg|_{x_1 = 0 \text{ nmi}}^{x_1 = \text{selected lateral range limit}}$$

where

A = Area under the LOGIT-fitted curve
a_1 = Value of the lateral range coefficient determined by the LOGIT regression analysis
x_1 = Lateral range
c = $a_0 + a_2 x_2 + a_3 x_3 + ... + a_n x_n$ for specified values of search parameters $x_2, x_3, ... x_n$. In this example $n = 0$. For continuous variables, the value for x_n is the average value for that data subset.

Sweep width is defined as two times the value of the area A computed above because searching occurs on both sides of the SRU; thus,

$$W = 2A.$$

The methods illustrated in the above example were used with all the SRU/target type combinations for which values of W were computed in this report. Integration limits were selected to include a lateral range interval from 0 nmi to a value well beyond the limits at which any detections were made during the experiments. These limits varied with each SRU/target combination.

CHAPTER 2
TEST RESULTS

2.1 INTRODUCTION

A combined total of 822 target detection opportunities were generated during the Fall 94 NVG experiment. The data were categorized by target type (boat, life raft and PIW) and were analyzed to determine the effect of the laser illuminator on each target type detection under different environmental conditions. The results of the analysis are presented in two sections. Section 2.2 provides a quantitative analysis of HH-60J detection performance, with and without the laser, against each target type. Section 2.3 provides an evaluation of the human factors studied during the experiment.

2.2 DETECTION PERFORMANCE

Sections 2.2.1 through 2.2.4 present a discussion and detailed analysis of each target data set for illuminated and non-illuminated targets. Lateral range curve plots and sweep width estimates are provided for statistically significant search parameter combinations that are well represented within each target/laser data subset. The different search parameter combinations were analyzed using logistic regression analysis with LOGIT to identify the variables that were significant at the 90 percent confidence level.

The lateral range plots in the following sections show the target lateral range from the aircraft trackline at the closest point of approach (CPA) versus the probability of detection (P_{det}). Figure 2-1 is an example of a lateral range curve plot. When the data set was large enough to adequately represent P_{det} over the domain of lateral ranges, the statistically significant variables were used to model the smoothed lateral range curve (see section 1.6.2.3). Each data subset plotted represents a unique combination of significant search variables.

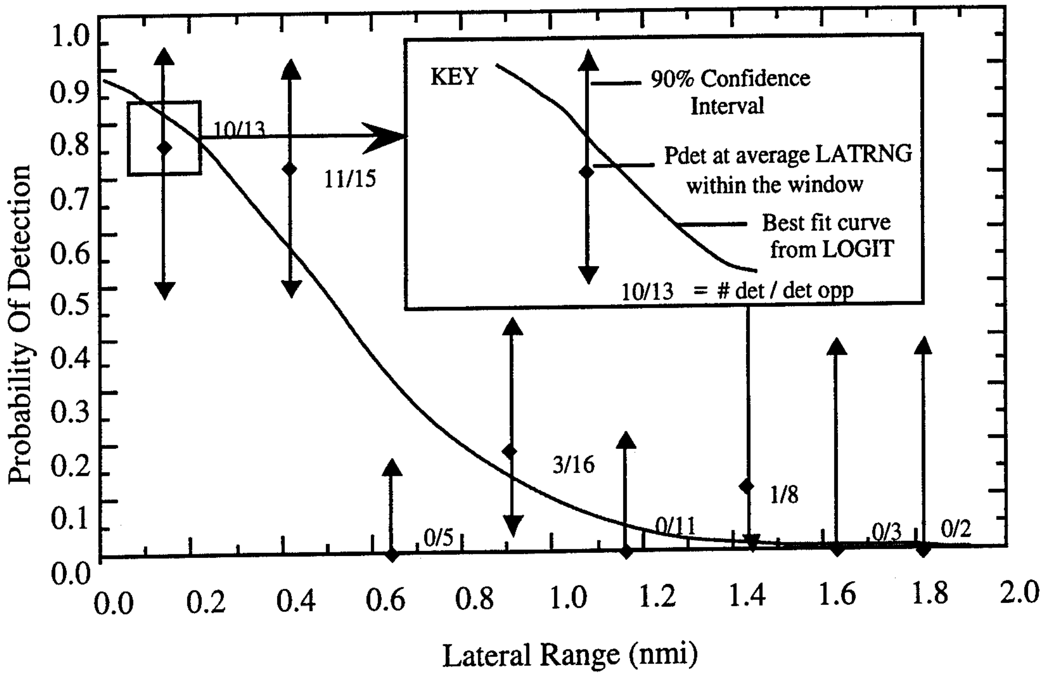


Figure 2-1. Example of Lateral Range Curve Plot, 0.25 nmi LATRNG Window

2.2.1 Helicopter Crew Comparison

Prior to the analysis of each data subset, an analysis was done to determine

(1) if there was a noticeable difference between helicopter crews, or

(2) if there was a noticeable difference between the left and right side of the aircraft when no laser was used in this experiment when compared to previous NVG experiments.

The life-raft data set was the only good data set that allowed the analysis of item (1) and it was assumed that the results for the other target types would be the same. The conclusion was that there was no noticeable difference in crew performance when searching under the same conditions (i.e., no laser illumination and similar environmental parameters).

Item (2) was analyzed using PIW targets. During the first two weeks, only the Cape Cod (laser) helicopter could search for PIW targets because of mechanical problems with the Clearwater (no laser) helicopter. The Cape Cod helicopter conducted three of the seven searches without the laser energized and the rest with the laser energized. No significant difference in detection

performance existed when left- and right-side data were compared under similar environmental conditions

Each variable was evaluated to determine the separate effects on sweep width. Discrete variables, such as MOONVIS, were evaluated at their respective values. Continuous variables, such as significant wave height (H_S), were first binned into discrete subsets and each subset was evaluated for its effect on P_{det} and sweep width.

Lateral range was identified as the most significant variable affecting P_{det} for all of the data subsets. Lateral range values were binned to determine the P_{det} over a small lateral range window. These values for P_{det}, along with the associated 90-percent confidence bands, are plotted with the smoothed curve and presented in sections 2.2.2 through 2.2.4.

2.2.2 Small Boat Detection Performance

The small boats described in section 1.5.3 were randomly positioned within the search area. The laser-equipped aircraft then searched for the targets, closely followed by the aircraft without the laser illuminator. Due to search constraints and the weather, no laser data were available for detection of small boats while the moon was visible. The significant variables for small boat searches for illuminated and non-illuminated targets were:

- Lateral Range — LATRNG
- Moon Visibility — MOONVIS (non-illuminated target sets,only)
- Laser Illumination — LASER

The P_{det} best-fit curves for laser illuminated and non-illuminated small boat searches are shown in figures 2-2 through 2-4. The non-illuminated target results, shown in figures 2-2 and 2-3, indicate that a visible moon provides better detection performance at lateral ranges less than 1.0 nmi, though not as much as expected from previous results (see reference 1). This may be due to oxidation of the paint on the small boats that created a relatively dull surface that does not reflect the moonlight as well as when the paint was newer. The detection performance for both cases quickly deteriorates to near zero by 1.0 nmi. The data shown in figures 2-2 through 2-4 are not sufficient to fully evaluate the effects of the laser under no-moonlight conditions, though the laser under no-moon conditions (figure 2-4) appears to be comparable to the visible moon and no-laser conditions in figure 2-2.

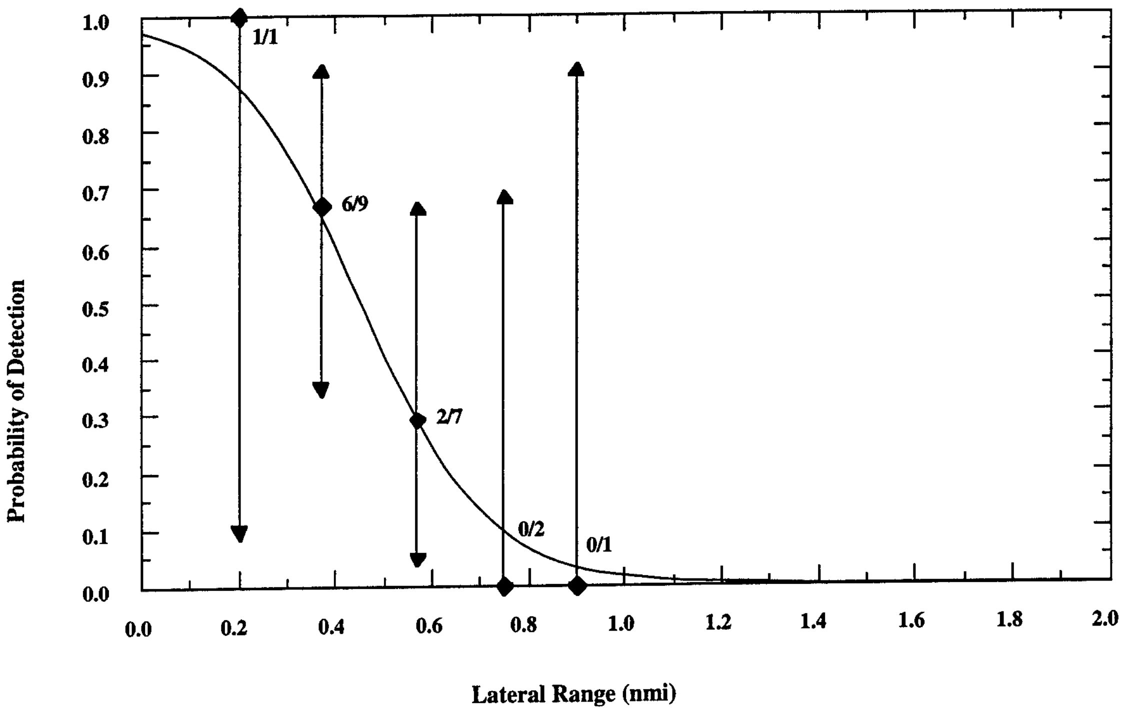


Figure 2-2. Small Boat NVG Detection, Visible Moon, No Laser Illumination

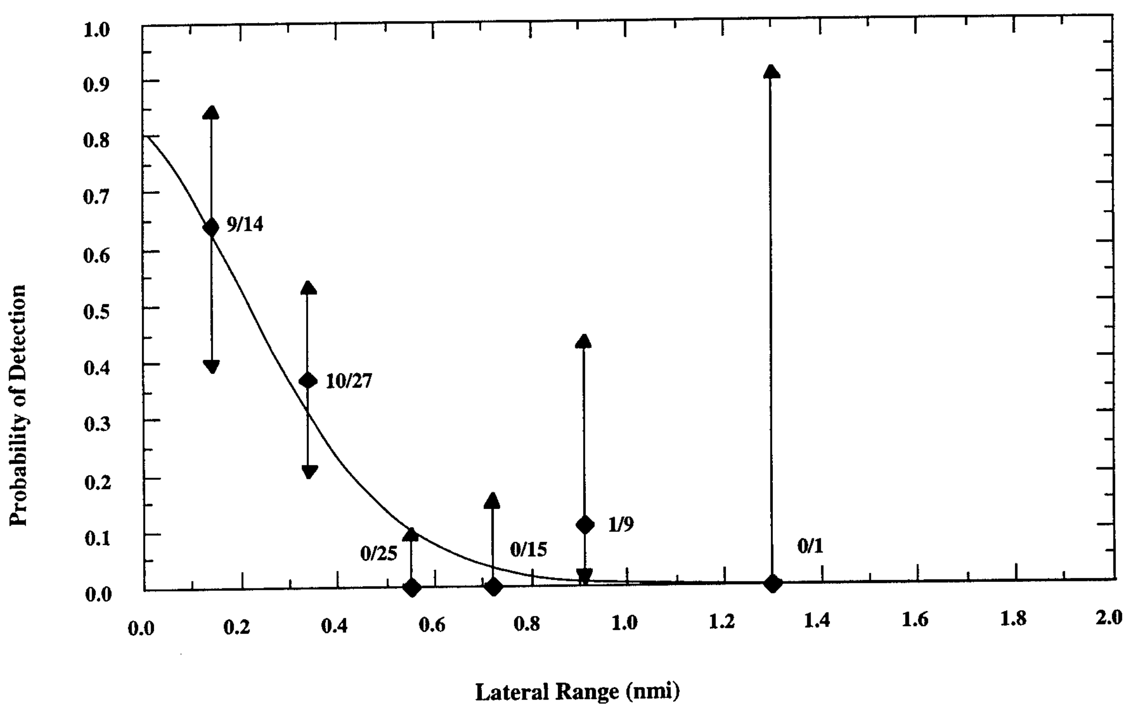


Figure 2-3. Small Boat NVG Detection, No Moon, No Laser Illumination

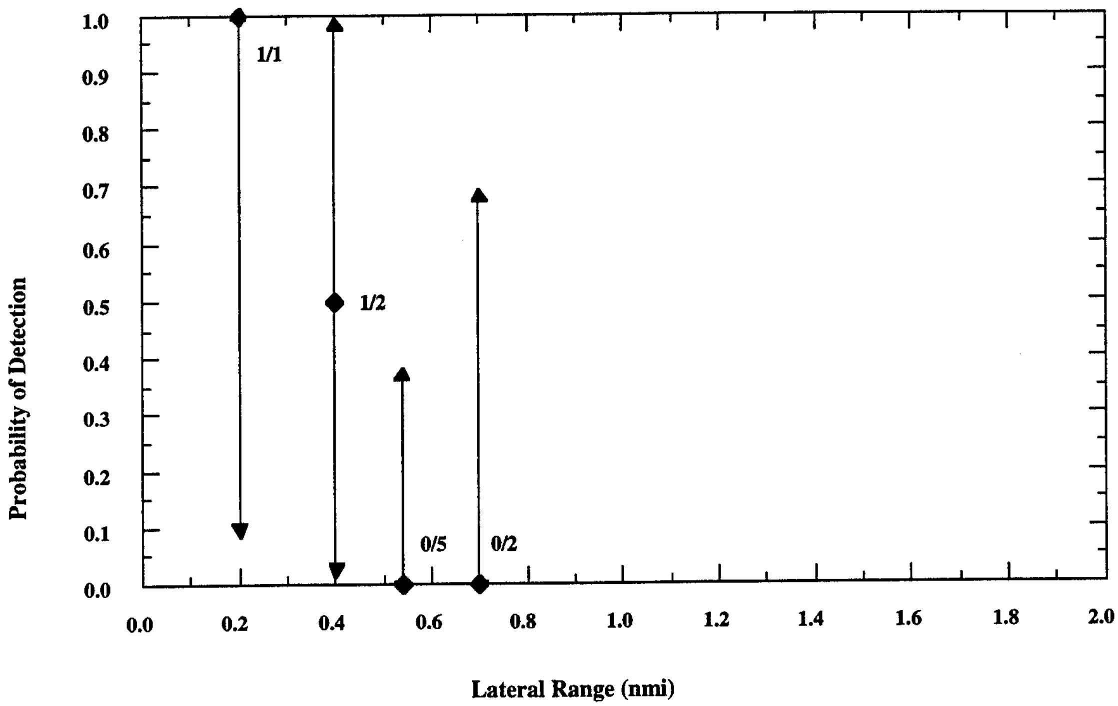


Figure 2-4. Small Boat NVG Detection, No Moon, Laser Illumination

2.2.3 Life-Raft Detection Performance

The life rafts* were distributed within the search area similarly to the small boats. The data sets obtained with and without a visible moon were both large enough to allow for a full analysis. MOONVIS and LASER were identified as significant variables and the data were grouped by these variables into four subsets. The P_{det} curves for these subsets are shown in figures 2-5 through 2-8. For the two moon-visibility conditions the significant variables are shown as follows:

- Moon Visible — LATRNG
- Moon Not Visible — LATRNG, LASER

Figures 2.5 and 2.6 indicate that the laser had a negligible effect on detection performance for life rafts when the moon was visible. Figures 2.7 and 2.8 show that when the moon was not visible, the laser had a dramatic positive impact on detection performance. Although the P_{det} curve in figure 2-8 is nearly zero by 1.5 nmi lateral range, there is an improved detection probability (greater than 0.7) for lateral ranges less than 0.5 nmi. Also shown in figure 2-8 are the detections made at a lateral range of 1.5 nmi. Only two detections were made at this range and more data is needed to better define the curve in this region.

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* All life rafts had retro reflective tape applied in accordance with SOLAS specifications.

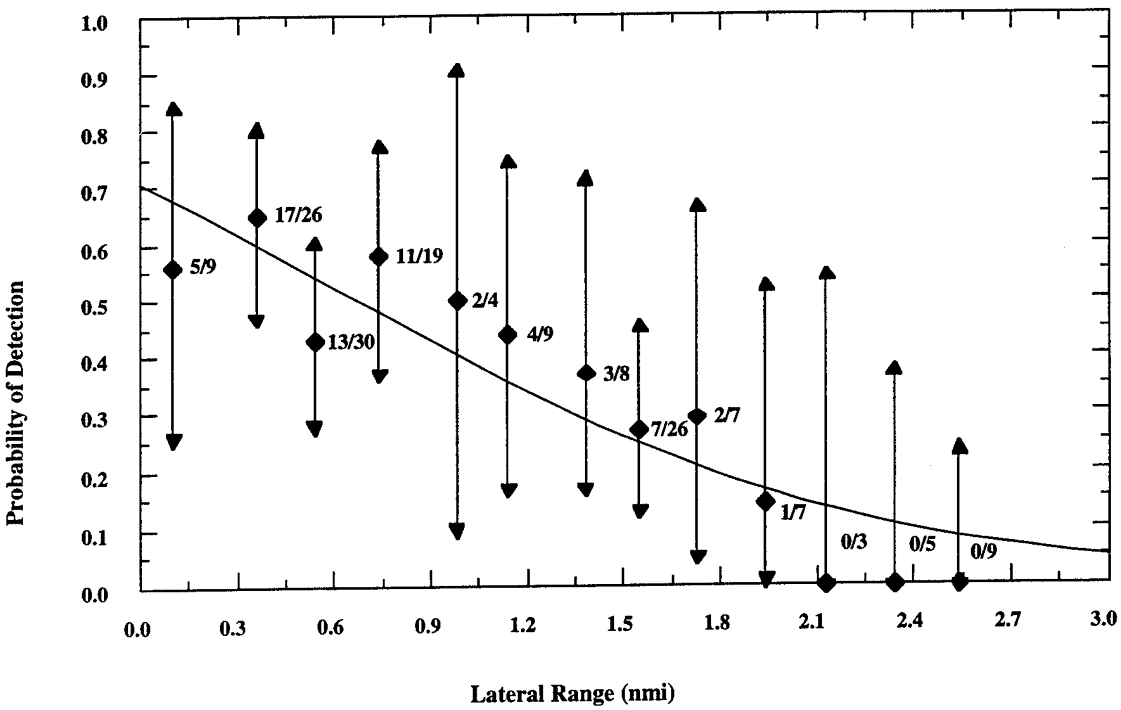

Figure 2-5. Life-Raft NVG Detection, Visible Moon, No Laser Illumination

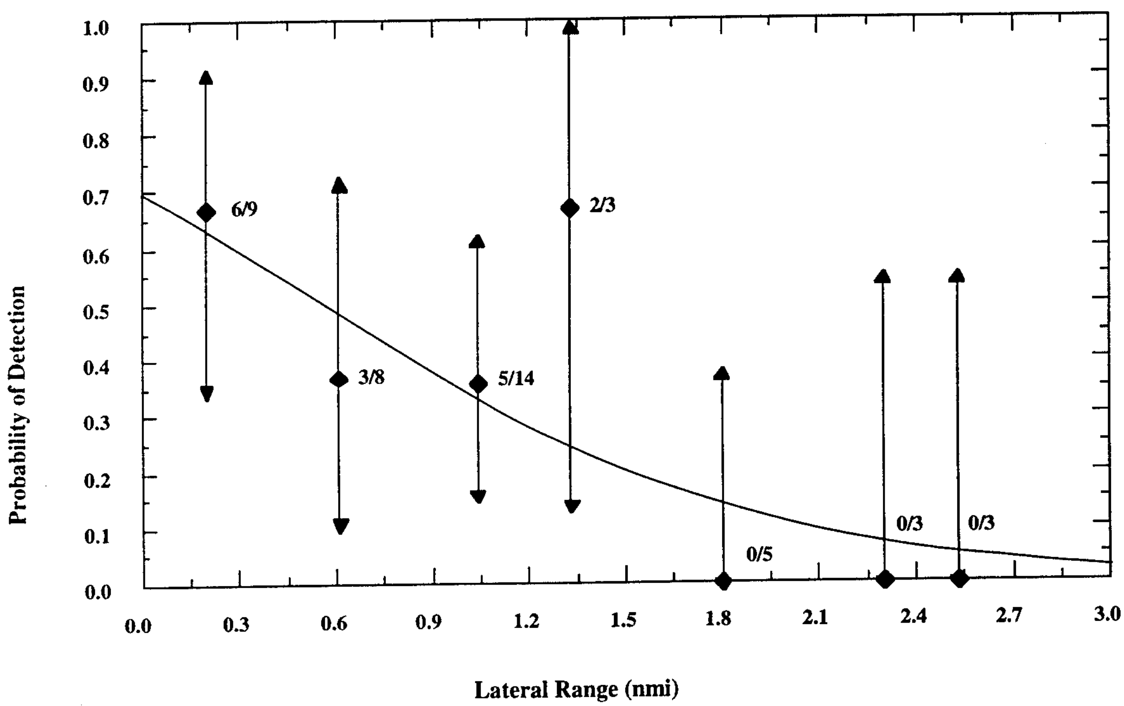

Figure 2-6. Life-Raft NVG Detection, Visible Moon, Laser Illumination

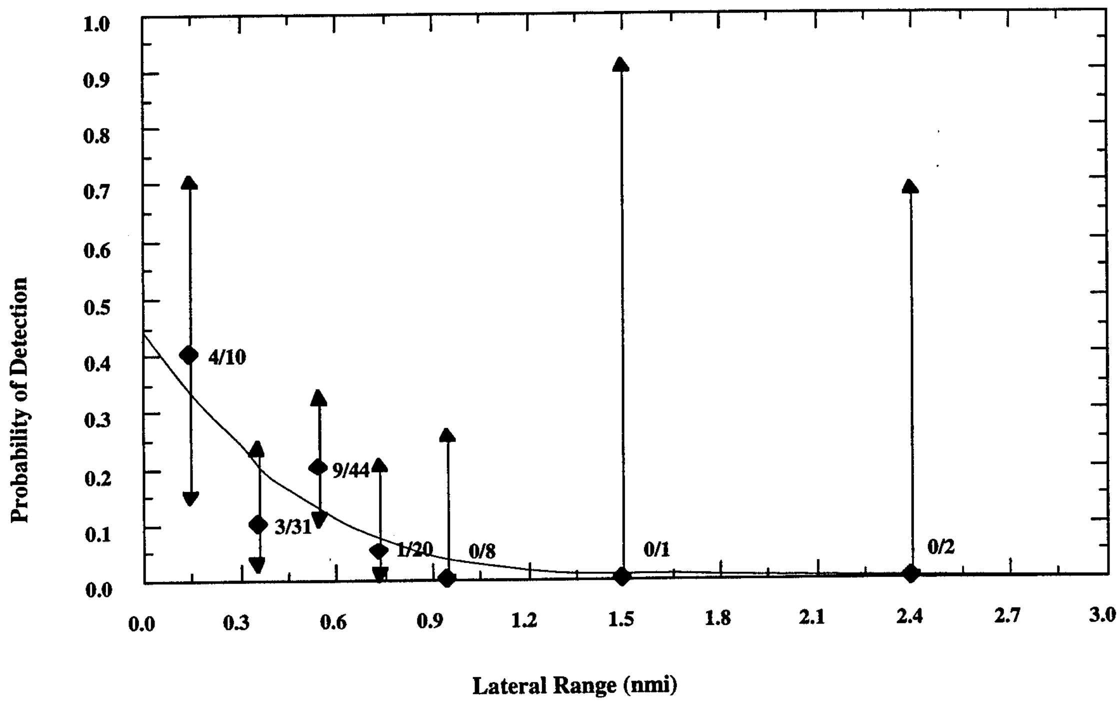

Figure 2-7. Life-Raft NVG Detection, No Moon, No Laser Illumination

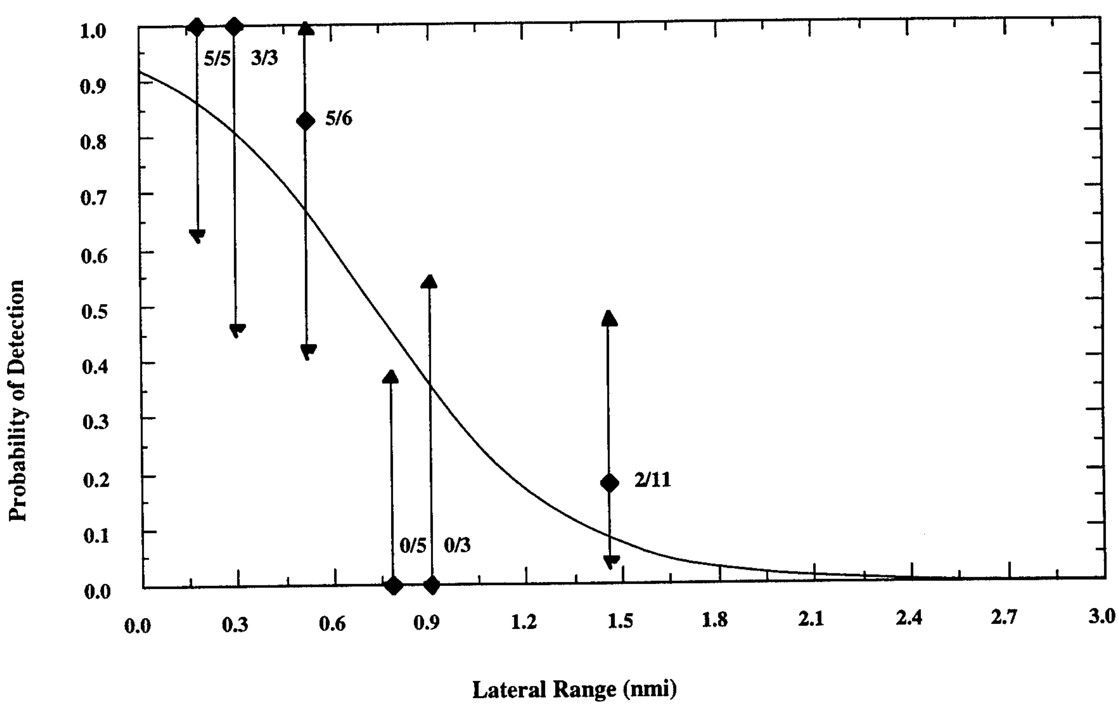

Figure 2-8. Life-Raft NVG Detection, No Moon, Laser Illumination

2.2.4 Persons-in-the-Water Detection Performance

The PIW targets were randomly distributed in a smaller search area than either the small boat or life-raft targets to accommodate the shorter detection ranges. Due to equipment failures during the PIW searches of weeks one and two on the aircraft without the lasers, the laser-equipped aircraft energized the laser for only half of their searches. Consequently, the data subset for laser-illuminated, moon-visible PIW searches (week one) is small. Both aircraft were operable for the PIW search during week three (no visible moon) and weeks two and three combined to make a substantial no-moon data set. The data were separated into MOONVIS and LASER data sets based on SYSTAT analysis and on the previous results (references 1and 2). LATRNG was identified as the most significant variable.

The P_{det} curves for PIW searches are shown in figures 2-9 through 2-12. The laser helped in both visible moon and no moon conditions. For the visible moon searches (figures 2-9 and 2-10), the laser increased detection dramatically and extended maximum lateral ranges for PIW detections. The P_{det} remained approximately the same (greater than 0.8) at very short lateral ranges (less than 0.1 nmi). The laser provided the most dramatic improvement during the no moon searches (figures 2-11 and 2-12). Detection performance was nearly zero under the no-moon, no-illumination case (figure 2-11). With the addition of the laser illuminator (figure 2-12), detection performance increased so dramatically that it surpassed the performance of the moon-visible, no laser case (figure 2-9). Even though the air crew often had to look through the laser beam reflecting off the haze, the PIW targets were still visible by the retroreflective tape shining through the atmospheric backscatter.

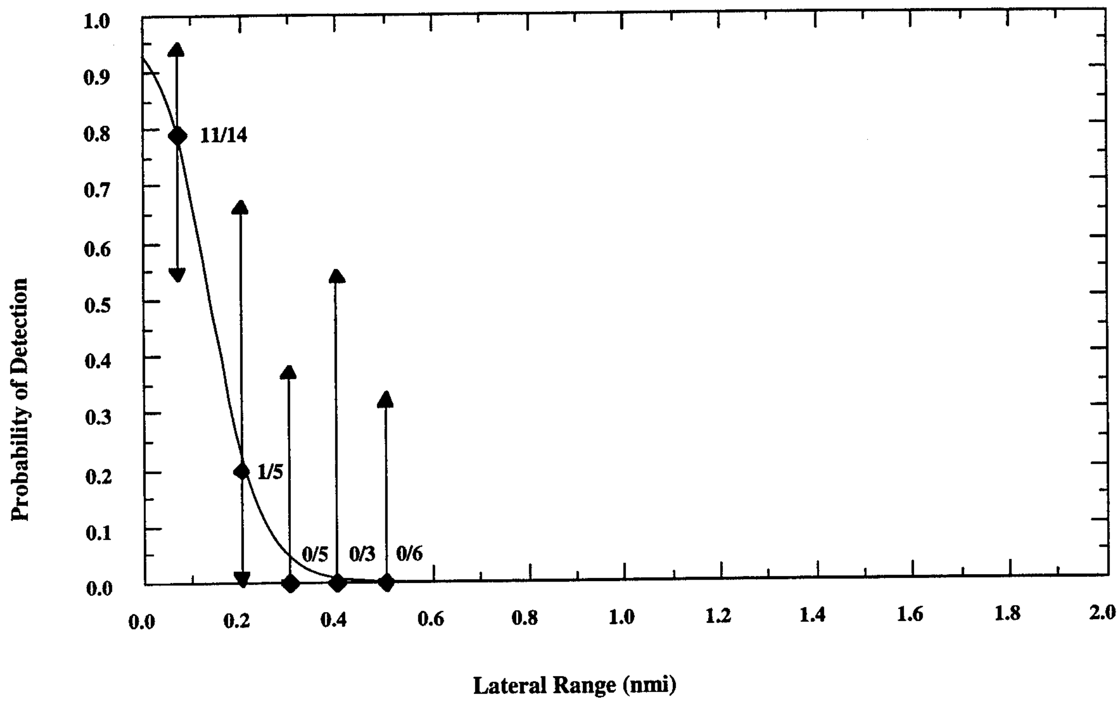

Figure 2-9. PIW NVG Detection, Visible Moon, No Laser Illumination

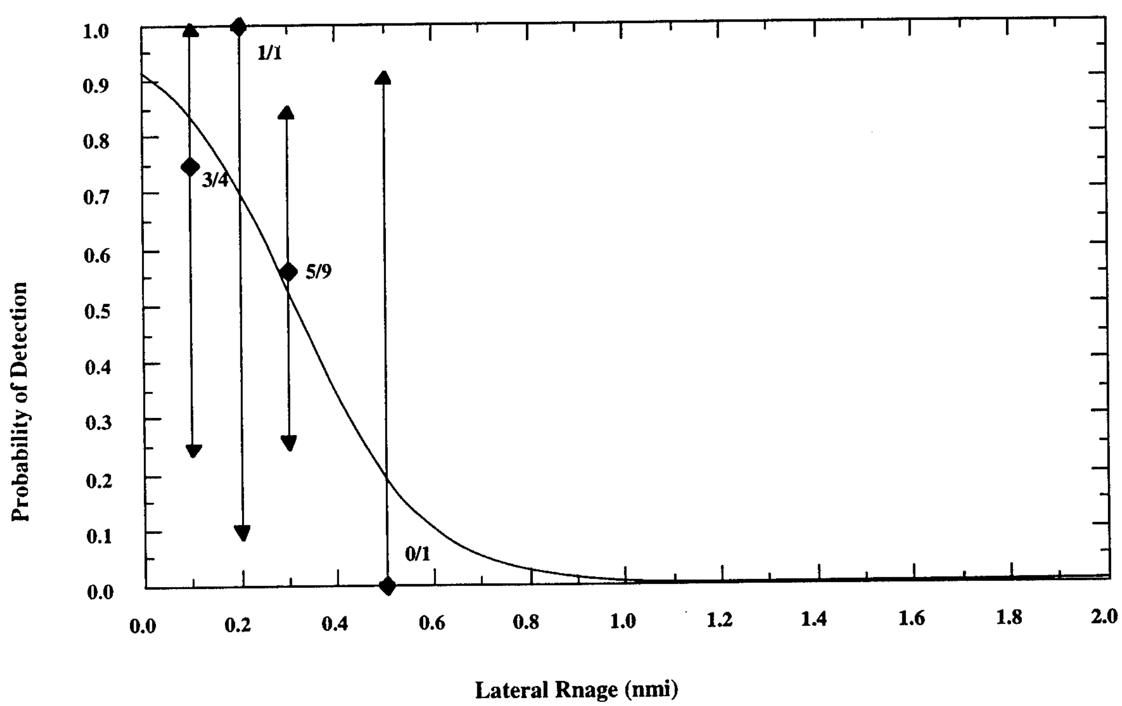

Figure 2-10. PIW NVG Detection, Visible Moon, Laser Illumination

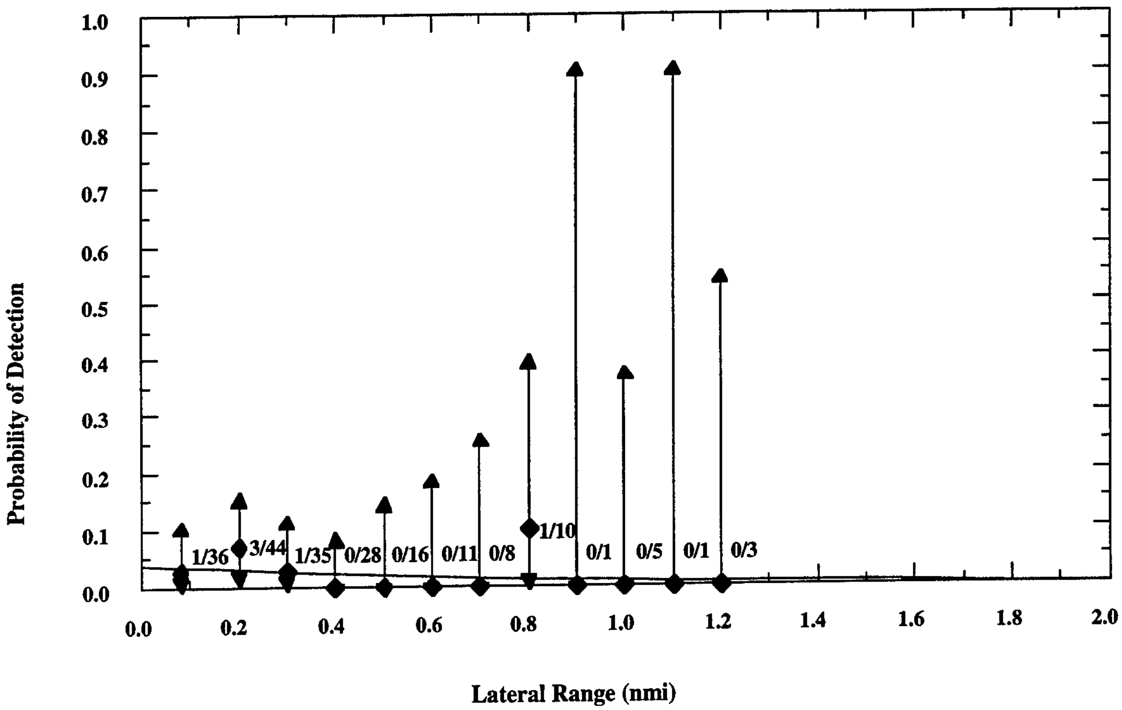

Figure 2-11. PIW NVG Detection, No Moon, No Laser Illumination

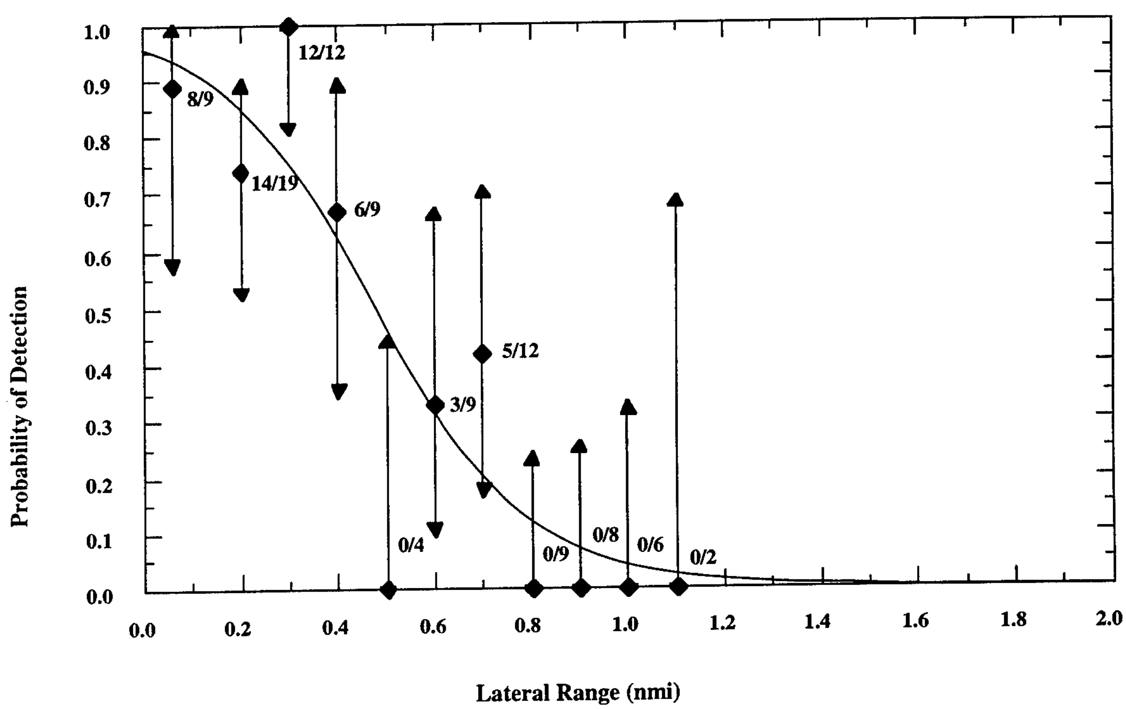

Figure 2-12. PIW NVG Detection, No Moon, Laser Illumination

2.3 HUMAN FACTORS

Sections 2.3.1 through 2.3.2 provide information that relates to the human factors aspects of NVG-assisted searches in a marine environment. Section 2.3.1 provides quantitative data that detail where and from what crew positions NVG detections were made. Section 2.3.2 summarizes subjective comments and observations made by the SRU crews and by members of the R&D Center test team.

2.3.1 Analysis of Detection by Position

The data set was too small to include a quantitative appraisal of the performance versus relative bearing. Much of this data were biased by the single-sided illumination of the laser. In general, for all target types over all conditions, an overwhelming majority of detections were made within the laser-illuminated area. Even in visible moon/laser-illuminated conditions nearly all of the detections were made within the laser beam. However, having a significant search advantage on one side of the aircraft may have adversely affected the detection performance of the other side. There is some evidence that the avionics position performance was degraded when the laser was energized compared to when it was off. The data were too sparse to be able to draw a valid statistical conclusion.

2.3.2 Comments Concerning NVG and Laser Use

Subjective comments from the helicopter crews concerning the use and effectiveness of both NVGs and laser illumination were solicited by each of the data recorders. A summary of these comments is provided below.

- Searching is much better with the laser. The laser also seems to break up the boredom on dark nights.
- Bright light from either the moon, the shore or the laser illuminator seems to partially "blind" the operator.
- When light sources are combined (i.e., moonlight and laser illuminator), the amount of light reflected from the surface of the water is "almost too much."
- The laser beam backscatter is very bright within about 10 feet of the aircraft for the laser configuration used. Hazy conditions make the problem worse.
- Even with the heavy backscatter coming from the laser beam, the target flashes can still be seen through the beam.

- The backscatter causes the operator to look away from the beam, causing some operators to like the small gap between the beams.
- For those not used to the NVGs, the weight makes their head sore.
- Five hours is about the limit of NVG use before the searcher's eyes start to hurt.
- The laser configuration used caused some reflection of the laser light into the cabin, interfering with the NVG operation.
- On dark nights, the laser illuminator helped NVG operation by reducing "optical noise" due to the high NVG gain.
- NVG searches, with or without the laser illuminator, are hindered by searching through a window.
- Training for illuminated NVG searches should include a target flyby to give the searcher a better idea of what to look for.
- The NVGs do not seem to be impaired by rain.
- The pilot liked the laser and did not have a problem with the beam with the source about 20 feet from where the pilot concentrated the close-in searches.

2.3.3 Crew Comments Concerning Target Appearance

When detections were made, SRU crew members were encouraged to provide a description of target appearance. Table 2-1 lists these target descriptions by SRU and target type. The descriptions appear in the table in descending order of frequency for each SRU/target type combination.

Table 2-1. Summary of Target Appearance Descriptions

TARGET TYPE	TARGET DESCRIPTION	
	LASER-ILLUMINATED	NON-ILLUMINATED
Small Boats	Small white skiff Shadow	Small Boat White small boat with bimini Black to white bimini Black Hull
Life Rafts with Retroreflective Tape	Mushroom dome yellow in color Faint light dot Glowed white	Raft round object All white, white cap/dot/glow/spot Bright spot Black object/dot
PIWs with Retroreflective Tape	White spot/ball/glint Little ball White florescent object Faint glint	(NO COMMENTS)

CHAPTER 3
CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSIONS

The following conclusions are based on the quantitative data analyses and subjective comments provided in chapter 2. Table 3-1 summarizes the results of the sweep width calculations for each target type. These sweep width values are based upon very limited data and should be used only for comparison purposes.

Table 3-1. Preliminary Sweep Width Analysis Results

TARGET TYPE	CONDITIONS	SWEEP WIDTH (W) (nmi)	NUMBER OF OPPORTUNITIES
Small Boats	no laser	-	111
	laser	-	10
	no moon/no laser	0.49	91
	no moon/laser	N/A	10
	moon/no laser	0.91	20
	moon/laser	N/A	0
Life Rafts	no laser	-	278
	laser	-	78
	no moon/no laser	0.37	116
	no moon/laser	1.50	33
	moon/no laser	1.82	162
	moon/laser	1.58	45
PIWs	no laser	-	231
	laser	-	114
	no moon/no laser	0.07	198
	no moon/laser	.97	99
	moon/no laser	.29	33
	moon/laser	.65	15

3.1.1 Small Boat Laser-Assisted NVG Search Evaluation

Laser illumination was identified as a positive significant variable for small boat detection; however, the laser-illuminated data were not sufficient (only 10 opportunities) to quantify the increase. The data gathered indicated that for the targets used, the laser had only limited added benefit and did not help with detection as much as expected for a large, white object. This may be due to the following reasons.

(1) The lack of retroreflective tape on the boats meant that the laser light was not consistently reflected back at the aircraft but forward (specular) away from the aircraft.

(2) The paint on the small boats had dulled from oxidation over the years and any light that may have been reflected back at the aircraft in earlier experiments was instead diffused.

The data gathered indicated that for the targets used, the laser had only limited added benefit.

3.1.2 Life Raft Laser-Assisted NVG Search Evaluation

NVG searches for the life rafts with retroreflective tape were significantly enhanced by the presence of a light source. Moonlight and laser illumination worked nearly equally well in increasing the life-raft detection performance of the NVGs. However, it may be possible with laser illumination to extend detection of life rafts to greater ranges (up to four nmi) in bright moon conditions. There were too little data at these ranges to draw a definite conclusion. The slight decrease in the sweep widths for moonlight and laser conditions was probably due to the lack of data. The 90 percent confidence bounds are large and a slight change in the curve will change the sweep width. A chi-square comparison test of the two data sets showed no significant difference at the 90+ confidence level.

In no-moon conditions the laser not only significantly extended the maximum lateral range of detections, but also raised the P_{det} at short lateral ranges to near 1.0.

3.1.3 PIW Laser-Assisted NVG Search Evaluation

The benefit of using active illumination on NVG searches appears most clear-cut in the PIW case. While the size of the data set is not large, a pattern is quite clear. Detection probability

was greater at all lateral ranges when the laser illuminator was used (compare figures 2-9 and 2-10). The greatest PIW detection probability at all lateral ranges was achieved using the laser under no-moon conditions. The use of the laser illuminator with no moon provides a reflection from the retro-reflective material on the life vests without the distraction of moon glint. However, detection performance when using the laser illuminator with the moon visible still exceeds the detection performance in the case of a visible moon with no illuminator. The detections, at all lateral ranges, for no moon and no illuminator were very low.

In summary:

1. Light from any source improves detections for a target with retroreflective tape.

2. The laser illuminator provided a dramatic improvement in detection of PIWs with retroreflective tape under all of the tested conditions, including those cases with the moon visible.

3. In no-moonlight conditions, laser illumination raises the sweep width from essentially zero to nearly one nmi.

4. The laser improvement in bright moonlight conditions was not as dramatic as in no-moonlight searches, but the sweep width is still doubled.

3.1.4. General Conclusions

1. Laser illumination appears to have a significant positive impact on small target detection by an NVG equipped search helicopter. The limited data collected during this experiment supports the assertion that the Coast Guard could gain enhanced effectiveness and efficiency from the development of illumination assisted NVG search capability for helicopter SRUs.

2. The door-mounted laser created a beam that was difficult to search through, although the searcher could still detect reflections off the retroreflective tape through the backscatter. Even with the distraction of the backscatter from the atmosphere, the laser still provided enhanced detection capabilities.

3. There is some evidence that a laser search off one side of the aircraft may cause degradation on the non-illuminated side. No reason for this could be found because the data for this analysis were sparse and did not support a definite conclusion.

4. Laser illumination worked best when the target was fitted with retroreflective tape. The bright flashes from the target were very detectable, even through the laser beam backscatter. In the case of targets without retroreflective tape, the laser reflection intensity may be degraded by dull paint or dark surfaces. Also, the beam may have been specularly reflected forward, away from the helicopter.

5. On dark nights, an aircraft-mounted illuminator helped alleviate both boredom and the visual noise either caused by the high NVG gain or created by the operator because of the lack of visual stimuli.

3.2 RECOMMENDATIONS

The following recommendations are offered concerning the employment, use and further evaluation of laser illuminator assisted NVG searches. These recommendations are based on the quantitative data analyses and the qualitative observations discussed in this report. The recommendations apply only to the conditions that existed during the experiment.

3.2.1 Recommendations for Laser Illumination

1. In no-moon conditions, the surface of the water should always be illuminated. A near-infrared illuminator does not affect the night vision of the aircrew. A laser illuminator provides large amounts of illumination at low power output.

2. The laser illuminator should be used in bright moonlight conditions. The laser provides greater detection ranges than those observed by moonlight alone.

3. Laser illumination should be employed on both sides of the aircraft and should illuminate to at least $\pm$ 90 degrees either side of the aircraft.

3.2.2 Recommendations for Future Research

Develop and test a full scale laser illumination device for use on NVG equipped helicopter SRUs. Future research should include the following:

- Laser illumination on both sides of the aircraft
- The laser mounted on the underside of the aircraft
- A full range of moon conditions
- A full range of target types.
- A new coat of paint for at least half of the small boats.

REFERENCES

1. Robe, R. Q.; Raunig, D. L.; Plourde, J. V.; and Marsee, R. L. Evaluation of Night Vision Goggles (NVG) for Maritime Search and Rescue (Summary NVG Report), Summary Report, Coast Guard R&D Center and A&T, Inc. February 1992.

2. Robe, R. Q. and Plourde, J. V., Evaluation of Night Vision Goggles (NVG) for Maritime Search and Rescue (HH-3/HH-60 Comparison Report, Coast Guard R&D Center and A&T, Inc. January 1993.

3. Aviator's Night Vision Imaging System, ITT Electro-Optical Products Division informational brochure, 1986.

4. ITT Achieves Leadership in Night Vision Technology, ITT Electro-Optical Products Division press backgrounder, 1988.

5. National Search and Rescue Manual, U.S. Coast Guard, COMDTINST M16120.5, 1 August 1986.

6. Koopman, B.O., Search and Screening General Principles with Historical Applications, Pergamon Press, 1980.

7. Cox, D.R., The Analysis of Binary Data, Chapman and Hall, 1977.

8. Steinberg, D., LOGIT: A Supplementary Module for SYSTAT, SYSTAT, Inc. November 1985

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APPENDIX A

KEY TO DATA APPENDIX

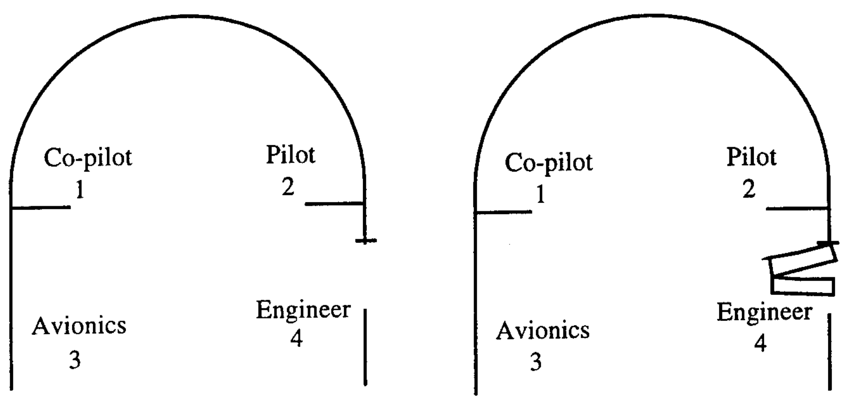
This appendix contains the raw data files for the U.S. Coast Guard NVG experiment conducted in the Fall of 1994. Each data file is labeled with the search unit hull number and the date on which the data were collected. The operational Coast Guard units corresponding to each hull number are listed below:

A/C No.	Unit Type	Operational Command
CG-6018	HH-60J	Coast Guard Air Station, Cape Cod, MA
CG-6035	HH-60J	Coast Guard Air Station, Clearwater, FL
CG-6039	HH-60J	Coast Guard Air Station, Clearwater, FL

The data files are listed in chronological order by unit. Each file record represents one SRU/target interaction and describes the target detection opportunity using 31 parameters of interest. The following is a key to the format of each record.

Item 1:	TIME HR	The hour in GMT time
Item 2:	TIME MIN	The minutes in GMT time
Item 3:	DET	1= yes, 0 = no
Item 4:	LATRNG	Lateral range (nautical miles)
Item 5:	TOT	Time on task (hours)
Item 6:	PRECIP	Precipitation level 0 = none 1 = light 2 = moderate 3 = heavy
Item 7:	VIS	Visibility (nautical miles)
Item 8:	WDSP	Wind speed (knots)
Item 9:	CLDC	Cloud coverage (tenths of sky obscured)
Item 10:	HS	Significant wave height (feet)
Item 11:	WHCAPS	Whitecap coverage 0 = none 1 = light 2 = heavy
Item 12:	SWDIR	Relative wave direction 1 = looking into oncoming waves, 0 = looking across the direction of wave travel -1 = looking at the backside of the waves

Item 13:	RELHM	Relative humidity (percent)
Item 14:	AIRTP	Air temperature (degrees Celsius)
Item 15:	WTTP	Water temperature (degrees Celsius)
Item 16:	RELAZ	Relative azimuth of artificial light 1 = looking into 0 = looking across -1 = looking away from
Item 17:	LEV	Artificial light level 0 = rural 1 = suburban 2 = urban
Item 18:	ELEV	Moon elevation (degrees above (+) or below (-) the horizon)
Item 19:	MOONVIS	Moon visible from search unit (1 = yes, 0 = no)
Item 20:	MOONRA	Moon relative azimuth 1 = looking into 0 = looking across -1 = looking away from)
Item 21:	PHS	Moon phase (0 (none), .1, ..., 1 (full)
Item 22:	SPD	Search speed (knots)
Item 23:	ALTTYPE	Search altitude in feet
Item 24:	POS	Lookout position on search unit for detections or -9 for all missed targets. Position codes are shown below.



Nonlaser-equipped HELICOPTER

Laser-equipped HELICOPTER

Item 25:	LO	Lookout identification number for detections or -9 for all missed targets.
Item 26:	EXP	Lookout experience with NVGs (hours) for detections or -9 for all missed targets.
Item 27:	TYNO	Target type (1 = small boat , 2 = life raft , 3 = PIW)

Item 28:	SUBTY	Target subtype as listed below: • small boat (0 = 18-foot, 1 = 21-foot) • life raft (0 = without, -1 = with retroreflective tape)
Item 29:	LASER	0 --The laser was off or the target could not have passed through the laser beam or 1 -- The laser was on and the search targets could have passed through the laser beam
Item 30:	ACLASR	0 -- The helicopter was not laser-equipped 1 -- The helicopter was laser-equipped
Item 31:	RELBRN	Relative bearing to the target from the helicopter in clock positions.

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CG-6018 **Oct 19 1994**

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXPER	TYNO	SUBTY	LASER	ACLASR	RELBRN
1	57	1	0.5	0.1	0	15	12.2	0.2	4.6	1	1	54	25.6	27.5	-1	1	46	1	1	1	90	300	3	602	10	2	-1	0	1	7
2	26	1	0.3	0.5	0	15	11.9	0.2	4.6	1	1	54	25.6	27.4	-1	1	53	1	1	1	90	300	4	603	3	2	-1	1	1	2
2	37	1	0.1	0.7	0	15	12.1	0.2	4.6	1	-1	54	25.6	27.4	1	1	55	1	-1	1	90	300	3	602	10	2	-1	0	1	7
3	22	1	0	1.5	0	15	12.2	0.2	4.6	1	0	62	25.6	27.3	0	1	64	1	0	1	90	300	4	603	3	2	-1	1	1	4
2	9	0	0.6	0.2	0	15	12.1	0.2	4.6	1	0	54	25.6	27.4	0	1	49	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
2	8	0	0.6	0.4	0	15	12.0	0.2	4.6	1	0	54	25.6	27.4	0	1	51	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
2	23	0	0.3	0.5	0	15	11.9	0.2	4.6	1	0	54	25.6	27.4	0	1	52	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
2	30	0	0.6	0.6	0	15	11.9	0.2	4.6	1	0	54	25.6	27.4	0	1	54	1	0	1	90	300	-9	-9	-9	2	-1	1	1	3
2	51	0	0.9	0.9	0	15	12.1	0.2	4.6	1	0	54	25.6	27.4	0	1	57	1	0	1	90	300	-9	-9	-9	2	-1	1	1	3
2	55	0	0.5	1	0	15	12.2	0.2	4.6	1	0	62	25.6	27.4	0	1	59	1	0	1	90	300	-9	-9	-9	2	-1	1	1	3
3	5	0	0.5	1.2	0	15	12.2	0.2	4.6	1	0	62	25.6	27.4	0	1	61	1	0	1	90	300	-9	-9	-9	2	-1	1	1	3
3	12	0	0.9	1.3	0	15	12.2	0.2	4.6	1	0	62	25.6	27.3	0	1	62	1	0	1	90	300	-9	-9	-9	2	-1	1	1	3
4	35	1	0.4	2.4	0	15	12.1	0.3	5	1	1	81	25.7	27.3	-1	1	73	1	0	1	90	300	4	603	3	2	-1	1	1	3
3	48	0	0.6	1.7	0	15	12.4	0.3	5	1	1	62	25.5	27.3	-1	1	68	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
3	57	0	0.3	1.9	0	15	12.4	0.3	5	1	-1	81	25.5	27.3	1	1	70	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
4	3	0	0.8	1.8	0	15	12.3	0.3	5	1	1	81	25.5	27.3	-1	1	71	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
4	7	0	0.6	2	0	15	12.2	0.3	5	1	1	81	25.5	27.3	-1	1	71	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
4	8	0	0.7	2	0	15	12.2	0.3	5	1	1	81	25.5	27.3	-1	1	71	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
4	13	0	0.6	2.1	0	15	12.1	0.3	5	1	-1	81	25.7	27.3	1	1	71	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
4	14	0	0.5	2.1	0	15	12.1	0.3	5	1	-1	81	25.7	27.3	1	1	72	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
4	17	0	0.4	2.1	0	15	12.0	0.3	5	1	-1	81	25.7	27.3	1	1	72	1	0	1	90	300	-9	-9	-9	2	-1	0	1	9
4	37	0	0.7	2.5	0	15	12.1	0.3	5	1	-1	81	25.7	27.3	1	1	73	1	0	1	90	300	-9	-9	-9	2	-1	1	1	3
4	51	0	0.1	2.7	0	15	12.3	0.3	5	1	1	81	25.5	27.3	-1	1	73	1	0	1	90	300	-9	-9	-9	2	-1	1	1	3
4	56	0	0.3	2.8	0	15	12.4	0.3	5	1	-1	62	25.5	27.3	1	1	73	1	0	1	90	300	-9	-9	-9	2	-1	1	1	3

EOF

CG-6035 Oct 19 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
1	41	1	0.6	0.2	0	15	12.2	0.2	5	1	0	59	25.6	27.5	0	1	43	1	0	1	90	300	1	604	300	2	-1	0	0	8.5
1	46	1	1.6	0.3	0	15	12.2	0.2	5	1	0	59	25.6	27.5	0	1	43	1	0	1	90	300	2	605	300	2	-1	0	0	3
1	54	1	0.3	0.4	0	15	12.2	0.2	5	1	-1	54	25.6	27.5	1	1	46	1	-1	1	90	300	3	607	300	2	-1	0	0	8
2	1	1	0.7	0.6	0	15	12.1	0.2	5	1	0	54	25.6	27.5	0	1	47	1	0	1	90	300	2	605	300	2	-1	0	0	3
2	51	1	0.1	1.4	0	15	12.2	0.2	5	1	-1	54	25.6	27.4	1	1	57	1	-1	1	90	300	2	605	300	2	-1	0	0	1
2	57	1	1.1	1.5	0	15	12.2	0.2	5	1	0	62	25.6	27.4	0	1	59	1	0	1	90	300	1	604	300	2	-1	0	0	9
1	29	0	0.5	0.1	0	15	12.1	0.2	5	1	0	59	25.6	27.4	0	1	41	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
1	38	0	1.6	0.2	0	15	12.1	0.2	5	1	0	59	25.6	27.4	0	1	43	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
1	42	0	2.3	0.3	0	15	12.2	0.2	5	1	0	59	25.6	27.4	0	1	43	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
1	46	0	1.4	0.3	0	15	12.2	0.2	5	1	0	59	25.6	27.4	0	1	43	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
1	48	0	0.7	0.4	0	15	12.2	0.2	5	1	0	59	25.6	27.4	0	1	45	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
1	52	0	2.1	0.4	0	15	12.2	0.2	5	1	0	54	25.6	27.4	0	1	45	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
1	57	0	0.3	0.5	0	15	12.2	0.2	5	1	0	54	25.6	27.4	0	1	45	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
2	3	0	1.3	0.6	0	15	12.1	0.2	5	1	0	54	25.6	27.4	0	1	48	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
2	4	0	1.2	0.6	0	15	12.1	0.2	5	1	0	54	25.6	27.4	0	1	48	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
2	7	0	0.1	0.7	0	15	12.1	0.2	5	1	0	54	25.6	27.4	0	1	48	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
2	9	0	2.3	0.7	0	15	12.1	0.2	5	1	0	54	25.6	27.4	0	1	49	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
2	12	0	1.7	0.8	0	15	12.0	0.2	5	1	0	54	25.6	27.4	0	1	50	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
2	19	0	1.4	0.9	0	15	12.0	0.2	5	1	0	54	25.6	27.4	0	1	51	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
2	20	0	0.9	0.9	0	15	12.0	0.2	5	1	0	54	25.6	27.4	0	1	52	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
2	23	0	1.9	0.9	0	15	11.9	0.2	5	1	0	54	25.6	27.4	0	1	52	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
2	24	0	0.5	1	0	15	11.9	0.2	5	1	0	54	25.6	27.4	0	1	52	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
2	35	0	1.9	1.1	0	15	12.0	0.2	5	1	0	54	25.6	25.5	0	1	55	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
2	35	0	0.5	1.1	0	15	12.0	0.2	5	1	0	54	25.6	25.5	0	1	55	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
2	40	0	1.5	1.2	0	15	12.0	0.2	5	1	0	54	25.6	25.5	0	1	56	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
2	40	0	1	1.2	0	15	12.0	0.2	5	1	0	54	25.6	25.5	0	1	56	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
3	33	1	0.6	2.1	0	15	12.3	0.2	5	1	0	62	25.6	27.4	0	1	66	1	0	1	90	300	1	604	300	2	-1	0	0	7.5
3	41	1	0.4	2.2	0	15	12.3	0.2	5	1	-1	62	25.5	27.3	1	1	67	1	0	1	90	300	1	604	300	2	-1	0	0	10
3	47	1	0.7	2.3	0	15	12.3	0.2	5	1	0	62	25.5	27.3	0	1	68	1	0	1	90	300	1	604	300	2	-1	0	0	8.5
3	52	1	0.8	2.4	0	15	12.4	0.2	5	1	0	81	25.5	27.3	-1	1	69	1	0	1	90	300	3	607	300	2	-1	0	0	8
3	54	1	0.3	2.5	0	15	12.4	0.2	5	1	-1	81	25.5	27.3	1	1	69	1	0	1	90	300	3	607	300	2	-1	0	0	9
3	59	1	0.3	2.5	0	15	12.3	0.2	5	1	-1	81	25.5	27.3	1	1	70	1	0	1	90	300	3	607	300	2	-1	0	0	9
4	16	1	0.4	2.8	0	15	12.1	0.2	5	1	1	81	25.7	27.3	-1	1	71	1	0	1	90	300	4	606	300	2	-1	0	0	3
3	50	0	0.7	2.4	0	15	12.4	0.2	5	1	1	62	25.5	27.3	-1	1	68	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
3	56	0	0.5	2.5	0	15	12.4	0.2	5	1	-1	81	25.5	27.3	1	1	69	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
4	18	0	0.7	2.8	0	15	12.0	0.2	5	1	-1	81	25.7	27.3	1	1	72	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
4	20	0	1.1	2.9	0	15	12.0	0.2	5	1	1	81	25.7	27.3	-1	1	72	1	0	1	90	300	-9	-9	-9	2	-1	0	0	9
4	31	0	0.2	3.1	0	10	12.0	0.2	5	1	1	81	25.7	27.3	-1	1	72	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3
4	36	0	0.8	3.2	0	10	12.1	0.2	5	1	-1	81	25.7	27.3	1	1	73	1	0	1	90	300	-9	-9	-9	2	-1	0	0	3

EOF

CG-6018 Oct 20 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
1	36	1	1.2	0.3	0	15	7.5	0.1	4.9	1	0	89	25.5	27.3	0	1	34	1	0	0.9	80	300	3	608	30	2	-1	0	1	9
1	43	1	0.2	0.4	0	15	7.3	0.1	4.9	1	0	89	25.6	27.3	0	1	36	1	0	0.9	80	300	4	609	5	2	-1	1	1	3
1	46	1	0.9	0.5	0	15	7.2	0.1	4.9	1	0	89	25.6	27.3	0	1	37	1	-1	0.9	80	300	4	609	5	2	-1	1	1	2
1	47	1	1.5	0.5	0	15	7.2	0.1	4.9	1	0	89	25.6	27.3	0	1	37	1	0	0.9	80	300	3	608	30	2	-1	0	1	9
1	48	1	0.8	0.5	0	15	7.2	0.1	4.9	1	0	89	25.6	27.3	1	1	37	1	-1	0.9	80	300	1	600	645	2	-1	1	1	1
1	52	1	0.3	0.6	0	15	7.1	0.1	4.9	1	0	89	25.6	27.3	0	1	38	1	0	0.9	80	300	4	609	5	2	-1	1	1	3
1	53	1	1.8	0.6	0	15	7.1	0.1	4.9	1	0	89	25.6	27.3	0	1	38	1	0	0.9	80	300	3	608	30	2	-1	0	1	9.5
1	59	1	0.5	0.7	0	15	7.2	0.1	4.9	1	-1	89	25.6	27.3	1	1	39	1	-1	0.9	80	300	1	600	645	2	-1	1	1	1
2	2	1	0.7	0.7	0	15	7.3	0.1	4.9	1	-1	89	25.6	27.3	1	1	40	1	-1	0.9	80	300	1	600	645	2	-1	1	1	1
2	6	1	1.6	0.8	0	15	7.5	0.1	4.9	1	0	89	25.6	27.3	0	1	41	1	0	0.9	80	300	3	608	30	2	-1	0	1	9
2	10	1	1.5	0.9	0	15	7.7	0.1	4.9	1	0	89	25.5	27.2	0	1	42	1	0	0.9	80	300	3	608	30	2	-1	0	1	9.5
2	27	1	0.3	1.1	0	15	8.3	0.1	4.9	1	-1	89	25.5	27.2	1	1	45	1	0	0.9	80	300	2	601	150	2	-1	0	1	11
2	38	1	0.7	1.3	0	15	7.6	0.1	4.9	1	0	89	25.5	27.2	0	1	48	1	0	0.9	80	300	3	608	30	2	-1	0	1	9.5
1	26	0	2.1	0.1	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	33	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
1	29	0	2.4	0.2	0	15	7.7	0.1	4.9	1	0	89	25.5	27.3	0	1	33	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
1	33	0	1.1	0.3	0	15	7.6	0.1	4.9	1	0	89	25.5	27.3	0	1	34	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
1	39	0	2.4	0.3	0	15	7.4	0.1	4.9	1	0	89	25.5	27.3	0	1	35	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
1	40	0	0	0.4	0	15	7.4	0.1	4.9	1	0	89	25.6	27.3	0	1	35	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	12
1	43	0	2.6	0.4	0	15	7.3	0.1	4.9	1	0	89	25.6	27.3	0	1	36	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
1	50	0	1.5	0.5	0	15	7.1	0.1	4.9	1	0	89	25.6	27.3	0	1	37	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
1	56	0	0.6	0.6	0	15	7.0	0.1	4.9	1	0	89	25.6	27.3	0	1	39	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
1	56	0	1.8	0.6	0	15	7.0	0.1	4.9	1	0	89	25.6	27.3	0	1	39	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
1	59	0	2.1	0.7	0	15	7.2	0.1	4.9	1	0	89	25.6	27.3	0	1	39	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
2	10	0	1	0.9	0	15	7.7	0.1	4.9	1	0	89	25.6	27.3	0	1	42	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
2	14	0	2.5	0.9	0	15	7.9	0.1	4.9	1	0	89	25.5	27.2	0	1	43	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
2	14	0	0	0.9	0	15	7.9	0.1	4.9	1	0	89	25.5	27.2	0	1	43	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	12
2	14	0	2.2	0.9	0	15	7.9	0.1	4.9	1	0	89	25.5	27.2	0	1	43	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
2	18	0	2.5	1	0	15	8.1	0.1	4.9	1	0	89	25.5	27.2	0	1	43	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
2	23	0	1.1	1.1	0	15	8.3	0.1	4.9	1	0	89	25.5	27.2	0	1	45	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
2	23	0	1.1	1.1	0	15	8.3	0.1	4.9	1	0	89	25.5	27.2	0	1	45	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
2	27	0	1.9	1.2	0	15	8.3	0.1	4.9	1	0	89	25.5	27.2	0	1	45	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
2	40	0	1.7	1.4	0	15	7.5	0.1	4.9	1	0	89	25.5	27.1	0	1	49	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
3	23	1	0.2	1.7	0	10	7.7	0.4	5.2	1	0	89	25.7	27.2	0	1	57	1	0	0.9	80	300	2	601	150	2	-1	0	1	11
3	32	1	0.7	1.9	0	10	7.9	0.4	5.2	1	-1	89	25.7	27.2	1	1	59	1	-1	0.9	80	300	3	608	30	2	-1	0	1	10
3	38	1	0.3	2	0	10	8.0	0.4	5.2	1	0	89	25.7	27.2	-1	1	61	1	0	0.9	80	300	3	608	30	2	-1	0	1	9
3	49	1	0.7	2.2	0	10	8.1	0.4	5.2	1	-1	89	25.7	27.2	1	1	63	1	-1	0.9	80	300	3	608	30	2	-1	0	1	10
4	1	1	1.1	2.3	0	10	7.9	0.4	5.2	1	0	89	25.7	27.2	-1	1	66	1	0	0.9	80	300	1	600	650	2	-1	1	1	2
4	4	1	1.3	2.4	0	10	7.8	0.4	5.2	1	0	89	25.7	27.2	-1	1	66	1	0	0.9	80	300	1	600	650	2	-1	1	1	1.5
4	5	1	1.4	2.5	0	10	7.7	0.4	5.2	1	0	89	25.7	27.2	-1	1	66	1	0	0.9	80	300	4	609	5	2	-1	1	1	2
4	11	1	0.5	2.6	0	10	7.5	0.4	4.9	1	1	89	25.7	27.1	-1	1	68	1	1	0.9	80	300	3	608	30	2	-1	0	1	9.5
4	12	1	0.1	2.6	0	10	7.4	0.4	4.9	1	0	89	25.7	27.1	0	1	68	1	1	0.9	80	300	1	600	650	2	-1	0	1	12
4	16	1	0.1	2.6	0	10	7.2	0.4	4.9	1	0	89	25.7	27.1	0	1	69	1	0	0.9	80	300	1	600	650	2	-1	1	1	1
4	20	1	0.8	2.7	0	10	7.0	0.4	4.9	1	-1	89	25.7	27.1	1	1	69	1	-1	0.9	80	300	3	608	30	2	-1	0	1	10
4	23	1	0.8	2.7	0	10	6.9	0.4	4.9	1	-1	89	25.7	27.1	1	1	70	1	-1	0.9	80	300	2	601	150	2	-1	0	1	10
4	24	1	0.8	2.8	0	10	6.9	0.4	4.9	1	-1	89	25.7	27.1	1	1	70	1	-1	0.9	80	300	3	608	30	2	-1	0	1	10
3	16	0	1.1	1.6	0	10	7.4	0.4	5.2	1	0	89	25.7	27.2	-1	1	56	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
3	33	0	1.3	1.9	0	10	7.9	0.4	5.2	1	0	89	25.7	27.2	-1	1	60	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
3	39	0	1.8	2	0	10	8.0	0.4	5.2	1	0	89	25.7	27.2	1	1	61	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
3	54	0	1.8	2.2	0	10	8.2	0.4	5.2	1	0	89	25.7	27.1	1	1	64	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
3	59	0	2	2.3	0	10	8.0	0.4	5.2	1	0	89	25.7	27.1	-1	1	65	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
4	3	0	1	2.4	0	10	7.8	0.4	5.2	1	0	89	25.7	27.1	-1	1	66	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
4	15	0	0.1	2.6	0	10	7.3	0.4	4.9	1	0	89	25.7	27.2	1	1	68	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
4	22	0	1.1	2.7	0	10	6.9	0.4	4.9	1	0	89	25.7	27.2	1	1	69	1	0	0.9	80	300	-9	-9	-9	2	-1	0	1	9
4	29	0	2	2.8	0	10	6.6	0.4	4.9	1	0	89	25.7	27.2	1	1	70	1	0	0.9	80	300	-9	-9	-9	2	-1	1	1	3
5	58	1	1.1	3.1	0	15	04.7	0.4	4.3	1	0	89	25.7	27	-1	1	75	1	-1	0.9	85	300	4	609	5	2	-1	1	1	2
6	15	1	1.2	3.4	0	15	08.5	0.4	4.3	1	0	89	25.7	27	-1	1	74	1	-1	0.9	85	300	4	609	30	2	-1	1	1	2
6	19	1	0.4	3.5	0	15	09.3	0.4	4.3	1	0	89	25.7	27	0	1	73	1	0	0.9	85	300	1	600	650	2	-1	0	1	11
6	31	1	0.8	3.7	0	15	10.7	0.4	4.3	1	-1	89	25.7	27	1	1	72	1	1	0.9	85	300	3	608	30	2	-1	0	1	9.5
6	44	1	1	3.9	0	15	10.7	0.4	4.3	1	1	89	25.1	27	-1	1	70	1	0	0.9	85	300	4	609	5	2	-1	1	1	3.5

CG-6018 Oct 20 1994 (continued)

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
6	6	0	0.3	3.2	0	15	06.5	0.4	4.3	1	1	89	25.7	27	-1	1	75	1	0	0.9	85	300	-9	-9	-9	2	-1	0	1	9
6	14	0	0.8	3.4	0	10	08.2	0.4	4.3	1	-1	89	25.7	27	1	1	74	1	0	0.9	85	300	-9	-9	-9	2	-1	0	1	9
6	36	0	1.7	3.7	1	10	10.7	0.4	4.3	1	-1	89	25.7	27	1	1	71	1	1	0.9	85	300	-9	-9	-9	2	-1	1	1	3
6	45	0	1	3.9	1	10	10.7	0.4	4.3	1	1	89	25	27	-1	1	70	1	-1	0.9	85	300	-9	-9	-9	2	-1	1	1	3
6	47	0	1.2	3.9	0	10	10.7	0.4	4.3	1	1	89	25	27	-1	1	69	1	-1	0.9	85	300	-9	-9	-9	2	-1	1	1	3
6	48	0	1	3.9	0	10	10.7	0.4	4.3	1	1	89	25	27	-1	1	69	1	-1	0.9	85	300	-9	-9	-9	2	-1	1	1	3
EOF																														

CG-6035 Oct 20 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
1	9	1	0.6	0.3	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	1	1	29	1	0	0.9	90	300	1	604	300	2	-1	0	0	10
1	12	1	0.7	0.3	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	1	1	29	1	0	0.9	90	300	1	604	300	2	-1	0	0	11
1	20	1	0.4	0.4	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	31	1	0	0.9	90	300	3	606	300	2	-1	0	0	10
1	24	1	1.2	0.5	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	32	1	0	0.9	90	300	3	606	300	2	-1	0	0	10
1	26	1	1.3	0.5	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	32	1	0	0.9	90	300	4	607	300	2	-1	0	0	2
1	27	1	1	0.5	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	1	1	33	1	0	0.9	90	300	3	606	300	2	-1	0	0	10.5
1	29	1	0.1	0.6	0	15	7.7	0.1	4.9	1	1	89	25.5	27.3	-1	1	33	1	1	0.9	90	300	2	605	300	2	-1	0	0	12
1	41	1	1	0.8	0	15	7.4	0.1	4.9	1	0	89	25.6	27.3	0	1	35	1	0	0.9	90	300	2	605	300	2	-1	0	0	1.5
1	48	1	1.9	0.9	0	15	7.2	0.1	4.9	1	0	89	25.6	27.3	0	1	36	1	0	0.9	90	300	3	606	300	2	-1	0	0	9
2	18	1	1.2	1.4	0	15	8.1	0.1	4.9	1	0	89	25.5	27.2	0	1	44	1	0	0.9	90	300	1	604	300	2	-1	0	0	9.5
0	56	0	2.6	0	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	26	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
0	58	0	2.6	0.1	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	26	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
1	3	0	1.7	0.1	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	27	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
1	6	0	1.7	0.2	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	29	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
1	15	0	2	0.4	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	30	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
1	17	0	0.4	0.4	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	31	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
1	19	0	2	0.4	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	31	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
1	31	0	2.3	0.6	0	15	7.6	0.1	4.9	1	0	89	25.5	27.3	0	1	33	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
1	38	0	1.6	0.7	0	15	7.5	0.1	4.9	1	0	89	25.5	27.3	0	1	35	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
1	48	0	0.5	0.9	0	15	7.2	0.1	4.9	1	0	89	25.6	27.3	0	1	37	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
1	52	0	0.5	1	0	15	7.1	0.1	4.9	1	0	89	25.6	27.3	0	1	38	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
2	4	0	1.5	1.2	0	15	7.4	0.1	4.9	1	0	89	25.6	27.3	0	1	40	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
2	9	0	2.5	1.2	0	15	7.6	0.1	4.9	1	0	89	25.6	27.3	0	1	41	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
2	8	1	0.4	1.2	0	15	7.6	0.1	4.9	1	-1	89	25.6	27.3	1	1	41	1	-1	0.9	90	300	2	605	300	2	-1	0	0	2
1	24	0	1.4	0.5	0	15	7.8	0.1	4.9	1	0	89	25.5	27.3	0	1	32	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
2	4	0	0.7	1.2	0	15	7.4	0.1	4.9	1	0	89	25.5	27.3	0	1	40	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
3	1	1	0.4	1.6	0	15	6.8	0.4	5.2	1	-1	89	25.5	27.1	0	1	53	1	-1	0.9	90	300	1	604	300	2	-1	0	0	11
3	9	1	1.4	1.8	0	15	7.2	0.4	5.2	1	0	89	25.5	27.1	1	1	55	1	0	0.9	90	300	2	605	300	2	-1	0	0	1.5
3	20	1	0.4	1.9	0	15	7.6	0.4	5.2	1	0	89	25.7	27.1	0	1	57	1	0	0.9	90	300	1	604	300	2	-1	0	0	11
3	26	1	1.4	2.1	0	15	7.8	0.4	5.2	1	0	89	25.7	27.1	1	1	58	1	0	0.9	90	300	2	605	300	2	-1	0	0	3
3	45	1	0.5	2.4	0	15	8.1	0.4	4.9	1	1	89	25.7	27.2	-1	1	62	1	1	0.9	90	300	1	604	300	2	-1	0	0	8.5
3	50	1	0.5	2.4	0	15	8.1	0.4	4.9	1	0	89	25.7	27.2	-1	1	63	1	0	0.9	90	300	1	604	300	2	-1	0	0	9
3	53	1	0.4	2.5	0	15	8.2	0.4	4.9	1	-1	89	25.7	27.2	0	1	63	1	-1	0.9	90	300	2	605	300	2	-1	0	0	11.5
3	56	1	0.5	2.5	0	15	8.2	0.4	4.9	1	0	89	25.7	27.2	0	1	64	1	-1	0.9	90	300	2	605	300	2	-1	0	0	12
3	58	1	0.4	2.6	0	15	8.1	0.4	4.9	1	-1	89	25.7	27.2	1	1	65	1	-1	0.9	90	300	1	604	300	2	-1	0	0	10
4	3	1	1.5	2.7	0	15	7.8	0.4	4.9	1	-1	89	25.7	27.2	1	1	66	1	0	0.9	90	300	2	605	300	2	-1	0	0	3
4	5	1	1.5	2.7	0	15	7.7	0.4	4.9	1	0	89	25.7	27.2	1	1	66	1	0	0.9	90	300	2	605	300	2	-1	0	0	2
4	8	1	1.5	2.7	0	15	7.6	0.4	4.9	1	0	89	25.7	27.2	1	1	66	1	0	0.9	90	300	2	605	300	2	-1	0	0	2
2	52	0	0.6	1.5	0	15	6.6	0.4	5.2	1	0	89	25.5	27.1	-1	1	51	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
3	3	0	1.7	1.8	0	15	6.9	0.4	5.2	1	0	89	25.5	27.1	-1	1	53	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
3	8	0	0.6	1.8	0	15	7.1	0.4	5.2	1	0	89	25.5	27.1	-1	1	54	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
3	35	0	1.6	2.2	0	15	7.9	0.4	5.2	1	0	89	25.7	27.1	-1	1	59	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
3	36	0	1.5	2.2	0	15	7.9	0.4	5.2	1	0	89	25.7	27.1	-1	1	60	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
3	38	0	1.6	2.2	0	15	8.0	0.4	5.2	1	0	89	25.7	27.1	-1	1	61	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
3	39	0	1.6	2.3	0	15	8.0	0.4	5.2	1	0	89	25.7	27.1	-1	1	61	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
3	46	0	0.6	2.4	0	15	8.1	0.4	4.9	1	0	89	25.7	27.2	-1	1	62	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
3	48	0	0.4	2.4	0	15	8.1	0.4	4.9	1	0	89	25.7	27.2	-1	1	63	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
3	55	0	0.4	2.5	0	15	8.2	0.4	4.9	1	0	89	25.7	27.2	1	1	64	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
4	7	0	1.6	2.7	0	15	7.6	0.4	4.9	1	0	89	25.7	27.2	1	1	66	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
5	31	1	0.6	2	0	15	05.1	0.3	4.9	1	1	89	25.7	27.1	-1	1	76	1	0	0.9	90	300	1	604	300	2	-1	0	0	10
5	40	1	0.3	2.1	0	15	04.8	0.3	4.9	1	0	89	25.7	27.1	0	1	76	1	-1	0.9	90	300	2	605	300	2	-1	0	0	11.5
5	42	1	1.7	2.2	0	15	04.7	0.3	4.3	1	1	89	25.7	27	-1	1	76	1	0	0.9	90	300	4	607	300	2	-1	0	0	3
5	59	1	0.4	2.4	0	15	04.9	0.3	4.3	1	0	89	25.7	27	0	1	75	1	0	0.9	90	300	1	605	300	2	-1	0	0	11
6	22	1	0.5	2.8	0	10	10.0	0.3	4.3	1	1	89	25.1	27	-1	1	73	1	0	0.9	90	300	3	606	300	2	-1	0	0	9.5
6	24	1	0.6	2.9	0	10	10.4	0.3	4.3	1	1	89	25.1	27	-1	1	73	1	0	0.9	90	300	3	606	300	2	-1	0	0	9.5
6	27	1	0.5	2.9	0	10	10.7	0.3	4.3	1	1	89	25.1	27	-1	1	73	1	-1	0.9	90	300	3	606	300	2	-1	0	0	9.5
6	31	1	0.5	3	0	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	72	1	1	0.9	90	300	3	606	300	2	-1	0	0	8.5
6	34	1	0.4	3	1	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	71	1	1	0.9	90	300	3	606	300	2	-1	0	0	8.5
5	49	0	1.5	2.3	0	15	04.4	0.3	4.3	1	-1	89	25.7	27	1	1	76	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3

CG-6035 Oct 20 1994 (continued)

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
5	58	0	2.4	2.4	0	15	04.7	0.3	4.3	1	-1	89	25.7	27	1	1	75	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	5	0	1.4	2.5	0	15	06.3	0.3	4.3	1	-1	89	25.7	27	1	1	75	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	8	0	2.5	2.6	0	15	06.9	0.3	4.3	1	1	89	25.7	27	-1	1	75	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	9	0	2.5	2.7	0	15	07.1	0.3	4.3	1	1	89	25.7	27	-1	1	75	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	12	0	1.6	2.7	0	10	07.8	0.3	4.3	1	1	89	25.1	27	-1	1	74	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	14	0	1.5	2.7	0	10	08.2	0.3	4.3	1	1	89	25.1	27	-1	1	74	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	16	0	1.6	2.7	0	10	08.7	0.3	4.3	1	1	89	25.1	27	-1	1	74	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	17	0	2.4	2.7	0	10	08.9	0.3	4.3	1	-1	89	25.1	27	1	1	73	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	17	0	1.6	2.7	0	10	08.9	0.3	4.3	1	1	89	25.1	27	-1	1	73	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	26	0	0.5	2.9	0	10	10.7	0.3	4.3	1	1	89	25.1	27	-1	1	73	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	32	0	0.5	3	0	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	72	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	35	0	0.4	3.1	1	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	71	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	40	0	1.5	3.1	1	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	71	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	42	0	1.5	3.2	1	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	71	1	0	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	43	0	1.6	3.2	1	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	70	1	1	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	45	0	1.5	3.2	1	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	70	1	1	0.9	90	300	-9	-9	-9	2	-1	0	0	3
6	48	0	2.5	3.3	0	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	69	1	1	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	50	0	2.5	3.4	0	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	69	1	1	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	51	0	2.5	3.4	0	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	69	1	1	0.9	90	300	-9	-9	-9	2	-1	0	0	9
6	53	0	2.5	3.4	0	10	10.7	0.3	4.3	1	-1	89	25.1	27	1	1	68	1	1	0.9	90	300	-9	-9	-9	2	-1	0	0	9
EOF																														

CG6018 **22 0CT 94**

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
2	1	1	0.1	0.1	0	15	7.6	0.1	2.6	1	0	90	25.9	27	0	1	22	1	0	0.8	75	300	1	601	150	3	0	1	1	1
2	3	1	0.1	0.1	0	15	7.6	0.1	2.6	1	0	90	25.9	27	0	1	23	1	0	0.8	75	300	1	601	150	3	0	0	1	11
2	14	1	0.1	0.3	0	15	7.6	0.1	2.3	1	1	90	25.9	27	-1	1	25	1	1	0.8	75	300	2	600	650	3	0	1	1	3
2	20	1	0.3	0.4	0	15	7.6	0.1	2.3	1	-1	90	25.9	27	1	1	26	1	-1	0.8	75	300	4	602	15	3	0	1	1	3
2	22	1	0.1	0.4	0	15	7.6	0.1	2.3	1	0	90	25.9	27	0	1	27	1	0	0.8	75	300	1	601	150	3	0	0	1	12
2	33	1	0.1	0.6	0	15	7.4	0.1	2.3	1	0	90	25.9	27	0	1	29	1	0	0.8	75	300	2	600	650	3	0	1	1	1
2	38	1	0.3	0.7	0	15	7.3	0.1	2.3	1	0	90	25.9	27	0	1	30	1	0	0.8	75	300	2	600	650	3	0	1	1	1
2	45	1	0.3	0.8	0	15	7.2	0.1	2.3	1	0	90	25.9	27	0	1	32	1	0	0.8	75	300	4	602	15	3	0	1	1	2
2	7	0	0.5	0.1	0	15	7.6	0.1	2.6	1	1	90	25.9	27	-1	1	24	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	9
2	8	0	0.3	0.2	0	15	7.6	0.1	2.6	1	1	90	25.9	27	-1	1	24	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	9
2	10	0	0.3	0.2	0	15	7.6	0.1	2.3	1	-1	90	25.9	27	1	1	24	1	-1	0.8	75	300	-9	-9	-9	3	0	1	1	3
2	10	0	0.2	0.2	0	15	7.6	0.1	2.3	1	1	90	25.9	27	-1	1	24	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	9
2	11	0	0.3	0.2	0	15	7.6	0.1	2.3	1	-1	90	25.9	27	1	1	25	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	9
2	13	0	0.2	0.3	0	15	7.6	0.1	2.3	1	-1	90	25.9	27	1	1	25	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	9
2	24	0	0.4	0.4	0	15	7.6	0.1	2.3	1	-1	90	25.9	27	1	1	27	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	9
2	24	0	0.3	0.4	0	15	7.6	0.1	2.3	1	1	90	25.9	27	-1	1	27	1	1	0.8	75	300	-9	-9	-9	3	0	1	1	3
2	56	1	0.1	0.9	0	15	7.0	0.1	2.3	1	0	90	25.9	27	0	1	35	1	0	0.8	75	300	1	601	150	3	0	0	1	11
3	3	1	0.1	1	0	15	6.9	0.1	2.3	1	-1	90	25.9	27	1	1	35	1	-1	0.8	75	300	2	600	650	3	0	0	1	3
3	8	1	0.1	1	0	15	6.8	0.1	2.3	1	-1	90	25.9	27	1	1	36	1	-1	0.8	75	300	1	601	150	3	0	0	1	10
3	20	1	0	1.3	0	15	6.7	0.1	2.3	1	0	90	25.9	27	0	1	39	1	0	0.8	75	300	1	601	150	3	0	0	1	12
3	39	1	0.1	1.6	0	15	6.5	0.1	2.3	1	-1	90	25.9	27	1	1	43	1	-1	0.8	75	300	2	600	650	3	0	0	1	3
3	41	1	0.2	1.6	0	15	6.5	0.1	2.6	1	-1	90	25.9	27	1	1	44	1	-1	0.8	75	300	4	602	15	3	0	0	1	3
3	43	1	0	1.6	0	15	6.5	0.1	2.6	1	0	90	25.9	27	0	1	44	1	0	0.8	75	300	2	600	650	3	0	0	1	12
3	17	0	0.3	1.2	0	15	6.7	0.1	2.3	1	1	90	25.9	27	-1	1	38	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	9
3	17	0	0.5	1.2	0	15	6.7	0.1	2.3	1	-1	90	25.9	27	1	1	38	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	3
3	22	0	0.4	1.3	0	15	6.6	0.1	2.3	1	-1	90	25.9	27	1	1	40	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	9
3	28	0	0.2	1.4	0	15	6.6	0.1	2.3	1	1	90	25.9	27	-1	1	40	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	9
3	29	0	0.2	1.4	0	15	6.6	0.1	2.3	1	-1	90	25.9	27	1	1	41	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	3
3	30	0	0.5	1.4	0	15	6.6	0.1	2.3	1	1	90	25.9	27	-1	1	41	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	9
3	31	0	0.1	1.4	0	15	6.6	0.1	2.3	1	-1	90	25.9	27	1	1	41	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	3
3	34	0	0.5	1.5	0	15	6.5	0.1	2.3	1	1	90	25.9	27	-1	1	42	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	3
3	34	0	0.5	1.5	0	15	6.5	0.1	2.3	1	-1	90	25.9	27	1	1	42	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	9
3	49	1	0	2	0	15	6.4	0.1	2.6	1	0	90	25.9	27	0	1	46	1	0	0.8	75	300	1	601	150	3	0	0	1	12
3	51	1	0.1	2.1	0	15	6.4	0.1	2.6	1	0	90	25.9	27	0	1	46	1	0	0.8	75	300	1	601	150	3	0	0	1	11
3	53	1	0.1	2.1	0	15	6.4	0.1	2.6	1	0	90	25.9	27	0	1	46	1	0	0.8	75	300	2	600	650	3	0	0	1	11
4	5	1	0.2	2.3	0	15	6.3	0.1	2.6	1	0	90	25.9	27	-1	1	48	1	1	0.8	75	300	4	602	15	3	0	1	1	3
4	28	1	0.3	2.7	0	15	6.2	0.1	2.6	1	0	90	26	27	-1	1	54	1	0	0.8	75	300	2	600	650	3	0	1	1	1
4	35	1	0.3	2.8	0	15	6.1	0.1	2.6	1	0	90	26	27	0	1	55	1	0	0.8	75	300	4	602	15	3	0	1	1	1
4	58	0	0.4	2.2	0	15	6.0	0.1	2.6	1	0	90	25.9	27	-1	1	47	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	9
4	1	0	0.5	2.2	0	15	6.4	0.1	2.6	1	0	90	25.9	27	1	1	47	1	-1	0.8	75	300	-9	-9	-9	3	0	1	1	3
4	1	0	0.3	2.2	0	15	6.4	0.1	2.6	1	0	90	25.9	27	-1	1	47	1	1	0.8	75	300	-9	-9	-9	3	0	0	1	9
4	2	0	0.3	2.2	0	15	6.4	0.1	2.6	1	0	90	25.9	27	1	1	48	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	9
4	4	0	0	2.3	0	15	6.3	0.1	2.6	1	0	90	25.9	27	0	1	48	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	9
4	10	0	0.3	2.4	0	15	6.3	0.1	2.6	1	0	90	26	27	0	1	50	1	-1	0.8	75	300	-9	-9	-9	3	0	1	1	3
4	15	0	0.3	2.4	0	15	6.3	0.1	2.6	1	0	90	26	27	-1	1	51	1	1	0.8	75	300	-9	-9	-9	3	0	1	1	3
4	15	0	0.5	2.4	0	15	6.3	0.1	2.6	1	0	90	26	27	1	1	51	1	-1	0.8	75	300	-9	-9	-9	3	0	0	1	9
4	24	0	0.1	2.6	0	15	6.2	0.1	2.6	1	0	90	26	27	1	1	53	1	-1	0.8	75	300	-9	-9	-9	3	0	1	1	3
4	12	0	0.1	2.4	0	15	6.3	0.1	2.6	1	0	90	26	27	0	1	49	1	0	0.8	75	300	-9	-9	-9	3	0	0	1	9

EOF

CG-6018 Oct 25 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
0	54	1	0.4	0.9	0	10	8.6	0.4	2	1	0	90	26.5	27.5	0	1	-19	0	0	0.6	90	300	3	608	15	1	1	0	1	9.5
0	36	0	0.2	0.6	0	10	8.5	0.4	2	1	0	90	26.5	27.4	0	1	-21	0	0	0.6	90	300	-9	-9	-9	1	0	0	1	9
0	42	0	0.8	0.7	0	10	8.5	0.4	2	1	0	90	26.5	27.4	0	1	-21	0	0	0.6	90	300	-9	-9	-9	1	0	0	1	9
0	50	0	0.9	0.8	0	10	8.6	0.4	2	1	0	90	26.5	27.4	0	1	-20	0	0	0.6	90	300	-9	-9	-9	1	0	0	1	9
0	52	0	0.6	0.9	0	10	8.6	0.4	2	1	0	90	26.5	27.4	0	1	-19	0	0	0.6	90	300	-9	-9	-9	1	1	0	1	9
0	57	0	0.5	1	0	10	8.5	0.4	2	1	0	90	26.5	27.4	0	1	-19	0	0	0.6	90	300	-9	-9	-9	1	1	0	1	9
0	59	0	0.5	1	0	10	8.4	0.4	2	1	0	90	26.5	27.4	0	1	-19	0	0	0.6	90	300	-9	-9	-9	1	1	0	1	9
1	2	0	0.5	1	0	10	8.2	0.4	2	1	0	90	26.5	27.4	0	1	-18	0	0	0.6	90	300	-9	-9	-9	1	0	0	1	9
1	33	0	0.4	1.5	0	10	6.9	0.4	2	1	0	90	26.5	27.4	0	1	-13	0	0	0.6	90	300	-9	-9	-9	1	0	1	1	3
1	43	0	0.6	1.7	0	10	6.8	0.4	2	1	0	90	26.5	27.4	0	1	-10	0	0	0.6	90	300	-9	-9	-9	1	0	1	1	3
2	20	1	0.4	2.2	0	10	6.1	0.4	2	1	-1	90	26.5	27.4	1	1	-4	0	-1	0.6	90	300	3	608	15	1	1	0	1	9
2	36	1	0.3	2.4	0	10	6.3	0.4	2	1	-1	90	26.5	27.4	1	1	-1	0	-1	0.6	90	300	3	608	15	1	1	0	1	9
3	9	1	0.4	2.9	0	10	6.7	0.4	2	1	-1	90	26.5	27.4	1	1	6	0	-1	0.6	90	300	3	608	15	1	0	0	1	9
2	11	0	0.5	3	0	10	6.3	0.4	2	1	1	90	26.5	27.4	-1	1	-5	0	1	0.6	90	300	-9	-9	-9	1	1	0	1	9
2	26	0	0.7	3.2	0	10	6.0	0.4	2	1	1	90	26.5	27.4	-1	1	-2	0	1	0.6	90	300	-9	-9	-9	1	0	0	1	9
2	28	0	0.6	3.2	0	10	6.1	0.4	2	1	1	90	26.5	27.4	-1	1	-2	0	1	0.6	90	300	-9	-9	-9	1	1	0	1	9
2	31	0	0.5	3.3	0	10	6.2	0.4	2	1	1	90	26.5	27.4	-1	1	-1	0	1	0.6	90	300	-9	-9	-9	1	0	0	1	9
2	33	0	0.7	3.3	0	10	6.2	0.4	2	1	-1	90	26.5	27.4	1	1	-1	0	-1	0.6	90	300	-9	-9	-9	1	0	0	1	9
2	37	0	0.4	3.5	0	10	6.3	0.4	2	1	-1	90	26.5	27.4	1	1	0	0	-1	0.6	90	300	-9	-9	-9	1	0	0	1	9
2	59	0	0.6	2.8	0	10	6.8	0.4	2	1	1	90	26.5	27.3	-1	1	4	0	1	0.6	90	300	-9	-9	-9	1	0	0	1	9
4	52	1	0.2	3.5	0	10	4.0	0.3	2	1	-1	95	26.4	27.3	1	1	28	1	-1	0.6	90	300	3	608	15	1	1	0	1	10
5	2	1	0.4	3.7	0	10	4.1	0.3	2	1	1	95	26.4	27.3	-1	1	30	1	1	0.6	90	300	3	608	15	1	0	0	1	9
5	9	1	0.4	3.8	0	10	4.4	0.3	2	1	-1	95	26.4	27.3	0	1	31	1	0	0.6	90	300	3	608	15	1	0	0	1	9.5
5	37	1	0.5	4.3	0	10	4.3	0.3	2	1	-1	95	26.3	27.3	1	1	38	1	-1	0.6	90	300	3	608	15	1	0	0	1	9.5
4	44	0	0.6	3.4	0	10	4.3	0.3	2	1	1	95	26.4	27.3	-1	1	26	1	1	0.6	90	300	-9	-9	-9	1	1	0	1	9
4	58	0	0.3	3.6	0	10	4.0	0.3	2	1	1	95	26.4	27.3	-1	1	29	1	1	0.6	90	300	-9	-9	-9	1	0	0	1	9
4	59	0	0.3	3.6	0	10	4.0	0.3	2	1	1	95	26.4	27.3	-1	1	29	1	1	0.6	90	300	-9	-9	-9	1	1	0	1	9
5	5	0	0.4	3.7	0	10	4.2	0.3	2	1	-1	95	26.4	27.3	1	1	30	1	-1	0.6	90	300	-9	-9	-9	1	0	0	1	9
5	8	0	0.5	3.8	0	10	4.3	0.3	2	1	-1	95	26.4	27.3	1	1	31	1	-1	0.6	90	300	-9	-9	-9	1	1	0	1	9
5	29	0	0.8	4.1	0	10	4.7	0.3	2	1	1	95	26.3	27.3	-1	1	36	1	1	0.6	90	300	-9	-9	-9	1	0	0	1	9

EOF

CG-6035 Oct 25 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
0	15	1	0.3	0.4	0	10	8.3	0.4	2	1	0	90	26.5	27.5	0	1	-25	0	0	0.6	90	300	1	622	300	1	0	0	0	9
0	28	1	0	0.6	0	10	8.4	0.4	2	1	1	90	26.5	27.5	-1	1	-23	0	1	0.6	90	300	1	622	300	1	1	0	0	12
0	30	1	0.1	0.6	0	10	8.4	0.4	2	1	-1	90	26.5	27.5	1	1	-23	0	-1	0.6	90	300	4	624	15	1	1	0	0	5
0	32	1	0.1	0.7	0	10	8.4	0.4	2	1	0	90	26.5	27.5	-1	1	-22	0	1	0.6	90	300	1	622	300	1	0	0	0	10
0	10	0	0.6	0.3	0	10	8.2	0.4	2	1	0	90	26.5	27.5	0	1	-26	0	0	0.6	90	300	-9	-9	-9	1	0	0	0	9
0	36	0	0.9	0.7	0	10	8.5	0.4	2	1	0	90	26.5	27.5	0	1	-22	0	0	0.6	90	300	-9	-9	-9	1	0	0	0	3
0	38	0	0.9	0.8	0	10	8.5	0.4	2	1	0	90	26.5	27.5	0	1	-21	0	0	0.6	90	300	-9	-9	-9	1	1	0	0	3
0	39	0	0.9	0.8	0	10	8.5	0.4	2	1	0	90	26.5	27.5	0	1	-21	0	0	0.6	90	300	-9	-9	-9	1	1	0	0	3
0	58	0	1	1.1	0	10	8.5	0.4	2	1	0	90	26.5	27.5	0	1	-19	0	0	0.6	90	300	-9	-9	-9	1	0	0	0	3
1	7	0	0.1	1.3	0	10	8.0	0.4	2	1	0	90	26.5	27.5	0	1	-17	0	0	0.6	90	300	-9	-9	-9	1	0	0	0	3
2	2	1	0.3	2	0	10	6.5	0.4	2	1	-1	90	26.5	27.4	1	1	-7	0	-1	0.6	90	300	1	622	300	1	1	0	0	9
1	34	0	0.8	1.6	0	10	6.9	0.4	2	1	1	90	26.5	27.4	-1	1	-12	0	1	0.6	90	300	-9	-9	-9	1	1	0	0	9
1	44	0	0.3	1.7	0	10	6.7	0.4	2	1	-1	90	26.5	27.4	1	1	-11	0	-1	0.6	90	300	-9	-9	-9	1	1	0	0	9
1	50	0	0.7	1.8	0	10	6.7	0.4	2	1	1	90	26.5	27.4	-1	1	-9	0	1	0.6	90	300	-9	-9	-9	1	0	0	0	9
1	52	0	0.5	1.8	0	10	6.6	0.4	2	1	1	90	26.5	27.4	-1	1	-9	0	1	0.6	90	300	-9	-9	-9	1	1	0	0	9
1	55	0	0.6	1.9	0	10	6.6	0.4	2	1	1	90	26.5	27.4	-1	1	-8	0	1	0.6	90	300	-9	-9	-9	1	0	0	0	9
1	59	0	0.4	2	0	10	6.5	0.4	2	1	-1	90	26.5	27.4	1	1	-7	0	-1	0.6	90	300	-9	-9	-9	1	0	0	0	9
2	3	0	0.3	2	0	10	6.4	0.4	2	1	-1	90	26.5	27.4	1	1	-7	0	-1	0.6	90	300	-9	-9	-9	1	0	0	0	9
2	27	0	0.7	2.4	0	10	6.0	0.4	2	1	1	90	26.5	27.4	-1	1	-2	0	1	0.6	90	300	-9	-9	-9	1	0	0	0	9
2	36	0	0.3	2.6	0	10	6.3	0.4	2	1	-1	90	26.5	27.4	1	1	-1	0	-1	0.6	90	300	-9	-9	-9	1	0	0	0	9
4	16	1	0.6	3	0	10	5.3	0.2	2	1	1	95	26.4	27.4	-1	1	20	1	1	0.6	90	300	1	622	300	1	1	0	0	9
4	25	1	0.4	3.2	0	10	5.1	0.2	2	1	0	95	26.4	27.4	1	1	22	1	0	0.6	90	300	1	622	300	1	1	0	0	10
4	45	1	0.4	3.4	0	10	4.3	0.2	2	1	0	95	26.4	27.3	1	1	26	1	0	0.6	90	300	1	622	300	1	1	0	0	10
4	47	1	0.3	3.5	0	10	4.2	0.2	2	1	0	95	26.4	27.3	1	1	27	1	-1	0.6	90	300	1	622	300	1	0	0	0	10
5	19	1	0.4	4	0	10	4.7	0.2	2	1	-1	95	26.3	27.3	1	1	34	1	0	0.6	90	300	1	622	300	1	0	0	0	10
4	34	0	0.7	3.3	0	10	4.7	0.2	2	1	1	95	26.4	27.3	-1	1	24	1	1	0.6	90	300	-9	-9	-9	1	0	0	0	9
4	36	0	0.9	3.3	0	10	4.7	0.2	2	1	1	95	26.4	27.3	-1	1	24	1	1	0.6	90	300	-9	-9	-9	1	1	0	0	9
4	38	0	0.6	3.3	0	10	4.6	0.2	2	1	1	95	26.4	27.3	-1	1	25	1	1	0.6	90	300	-9	-9	-9	1	0	0	0	9
4	43	0	0.6	3.4	0	10	4.4	0.2	2	1	-1	95	26.4	27.3	1	1	26	1	-1	0.6	90	300	-9	-9	-9	1	0	0	0	9
5	10	0	0.6	3.9	0	10	4.4	0.2	2	1	1	95	26.4	27.3	-1	1	31	1	1	0.6	90	300	-9	-9	-9	1	0	0	0	9

EOF

CG-6018 Oct 27 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
23	58	1	0.7	0.1	1	5	2.1	1	3	1	1	95	21.7	26.7	-1	1	-43	0	0	0.4	90	300	3	612	70	2	1	0	1	10
0	3	1	1.6	0.2	1	5	10.9	1	3	1	0	95	21.7	26.7	-1	1	-42	0	1	0.4	90	300	2	610	300	2	1	1	1	2.5
0	6	1	1.6	0.2	1	5	11.3	1	3	1	0	95	21.7	26.7	-1	1	-42	0	1	0.4	90	300	2	610	300	2	1	1	1	2.5
0	42	1	0.4	0.8	0	10	12.1	1	3	1	0	95	22.4	26.7	1	1	-38	0	-1	0.4	90	300	1	611	30	2	1	0	1	9
0	5	0	0.4	0.2	1	5	11.1	1	3	1	0	95	21.7	26.7	1	1	-42	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	9	0	1.4	0.3	1	5	11.6	1	3	1	0	95	21.7	26.7	-1	1	-41	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
0	12	0	0.6	0.3	1	5	12.0	1	3	1	0	95	22.1	26.7	-1	1	-41	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	14	1	0.6	0.4	1	5	12.2	1	3	1	0	95	22.1	26.7	-1	1	-41	0	0	0.4	90	300	1	611	30	2	1	0	1	9.5
0	17	0	1.4	0.4	1	5	12.6	1	3	1	0	95	22.1	26.7	1	1	-41	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
0	18	0	0.7	0.4	1	5	12.7	1	3	1	0	95	22.1	26.7	-1	1	-41	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	21	0	0.4	0.5	1	5	13.1	1	3	1	0	95	22.1	26.7	1	1	-40	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	22	0	2.4	0.5	1	5	13.2	1	3	1	0	95	22.1	26.7	1	1	-40	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	25	0	0.4	0.5	1	5	13.6	1	3	1	0	95	22.1	26.7	1	1	-40	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	25	0	1.7	0.6	1	5	13.6	1	3	1	0	95	22.1	26.7	-1	1	-40	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
0	26	0	0.5	0.6	1	5	13.5	1	3	1	0	95	22.1	26.7	1	1	-40	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	28	0	1.5	0.6	0	10	13.3	1	3	1	0	95	22.1	26.7	1	1	-40	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
0	29	0	0.6	0.6	0	10	13.3	1	3	1	0	95	22.1	26.7	-1	1	-39	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	30	0	1.5	0.6	0	10	13.2	1	3	1	0	95	22.1	26.7	1	1	-39	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
0	35	0	1.3	0.7	0	10	12.7	1	3	1	0	95	22.1	26.7	1	1	-39	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
0	38	0	1.3	0.8	0	10	12.4	1	3	1	0	95	22.1	26.7	-1	1	-38	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
0	42	0	1.5	0.8	0	10	12.1	1	3	1	0	95	22.4	26.7	1	1	-38	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	47	0	1.4	0.9	0	10	11.6	1	3	1	0	95	22.4	26.7	1	1	-37	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
0	53	0	0.6	1	0	10	11.1	1	3	1	0	95	22.4	26.7	-1	1	-37	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
0	56	0	0.5	1.1	0	10	10.9	1	3	1	0	95	22.4	26.7	1	1	-36	0	-1	0.4	90	300	-9	-9	-9	2	1	0	1	9
1	1	0	2.4	1.2	0	10	10.9	1	3	1	0	95	22.4	26.7	1	1	-35	0	-1	0.4	90	300	-9	-9	-9	2	1	0	1	9
1	12	0	1.4	1.3	0	10	11.0	1	3	1	0	95	22.7	26.8	1	1	-34	0	-1	0.4	90	300	-9	-9	-9	2	1	1	1	3
1	44	1	0.5	1.3	0	10	10.5	1	3	1	-1	95	23	26.7	0	1	-29	0	0	0.4	90	300	3	612	70	2	-1	0	1	9
2	13	1	0.5	1.8	0	10	9.9	1	3	1	1	95	23.5	26.7	0	1	-24	0	0	0.4	90	300	2	610	300	2	-1	1	1	3
2	39	1	0.3	2.2	0	10	6.9	1	3	1	-1	95	23.5	26.7	0	1	-19	0	0	0.4	90	300	2	610	300	2	-1	1	1	2
2	41	1	0.2	2.3	0	10	6.5	1	3	1	0	95	24.1	26.7	1	1	-19	0	0	0.4	90	300	4	613	6	2	-1	1	1	1
2	27	0	0.5	2	0	10	9.3	1	3	1	-1	95	23.5	26.7	0	1	-22	0	0	0.4	90	300	-9	-9	-9	2	-1	1	1	3
2	31	0	0.9	2.1	0	10	8.5	1	3	1	1	95	23.5	26.7	0	1	-21	0	0	0.4	90	300	-9	-9	-9	2	-1	1	1	3
2	34	0	0.8	2.2	0	10	7.9	1	3	1	1	95	23.5	26.7	0	1	-21	0	0	0.4	90	300	-9	-9	-9	2	-1	1	1	3
4	48	1	0.2	2.7	0	10	1.3	0.6	3	0	0	95	24.4	26.7	1	1	6	0	-1	0.4	90	300	4	613	6	2	1	1	1	2
5	23	1	0.5	3.3	0	10	1.4	0.6	3	0	0	95	24.4	26.7	0	1	13	0	0	0.4	90	300	4	613	6	2	1	1	1	3
5	35	1	0.5	3.5	0	10	1.6	0.6	3	0	0	95	24.4	26.7	0	1	16	0	0	0.4	90	300	4	613	6	2	1	1	1	3
5	46	1	0.2	3.7	0	10	1.9	0.6	3	0	-1	95	24.5	26.7	1	1	18	0	-1	0.4	90	300	4	613	6	2	1	1	1	2
5	49	1	0.2	3.7	0	10	2.0	0.6	3	0	0	95	24.5	26.7	1	1	19	0	-1	0.4	90	300	2	610	300	2	1	1	1	2
4	34	0	0.2	2.5	0	10	2.3	0.6	3	0	0	95	24.2	26.7	0	1	3	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
4	39	0	0.9	2.5	0	10	1.9	0.6	3	0	0	95	24.2	26.7	0	1	4	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
4	40	0	0.9	2.6	0	10	1.9	0.6	3	0	0	95	24.4	26.7	0	1	5	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
4	49	0	0.5	2.7	0	10	1.2	0.6	3	0	0	95	24.4	26.7	0	1	6	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
4	54	0	0.6	2.8	0	10	0.9	0.6	3	0	0	95	24.4	26.7	0	1	7	0	0	0.4	90	300	-9	-9	-9	2	1	0	1	9
5	39	0	0.8	3.5	0	10	1.7	0.6	3	0	0	95	24.4	26.7	0	1	17	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3
5	42	0	0.8	3.6	0	10	1.8	0.6	3	0	0	95	24.5	26.7	0	1	18	0	0	0.4	90	300	-9	-9	-9	2	1	1	1	3

EOF

CG-6035 Oct 27 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
0	19	1	0.5	0.3	1	5	12.9	1	2.6	1	0	95	22.1	26.7	-1	1	-40	0	0	0.4	90	300	1	621	200	2	-1	0	0	8
0	21	1	0.6	0.4	1	5	13.1	1	2.6	1	0	95	22.1	26.7	-1	1	-40	0	0	0.4	90	300	3	623	15	2	-1	0	0	9
0	34	1	0.5	0.6	1	5	12.8	1	2.6	1	0	95	22.1	26.7	1	1	-39	0	0	0.4	90	300	3	623	15	2	-1	0	0	9
0	35	1	0.5	0.7	1	5	12.7	1	2.6	1	0	95	22.1	26.7	1	1	-39	0	0	0.4	90	300	3	623	15	2	-1	0	0	9
0	39	1	0.5	0.7	1	5	12.4	1	2.6	1	0	95	22.1	26.7	-1	1	-38	0	1	0.4	90	300	3	623	15	2	-1	0	0	8
0	53	1	0.5	0.9	0	10	11.1	1	2.6	1	0	95	22.4	26.7	1	1	-37	0	0	0.4	90	300	1	621	200	2	-1	0	0	9
0	5	0	0.6	0.1	1	5	11.1	1	2.6	1	0	95	21.7	26.7	-1	1	-42	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
0	13	0	0.4	0.2	1	5	12.1	1	2.6	1	0	95	22.1	26.7	1	1	-41	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
0	26	0	0.7	0.4	1	5	13.5	1	2.6	1	0	95	22.1	26.7	-1	1	-40	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
0	30	1	0.4	0.5	1	5	13.2	1	2.6	1	0	95	22.1	26.7	1	1	-39	0	0	0.4	90	300	3	623	15	2	-1	0	0	9
1	1	0	0.7	1	0	10	10.9	1	2.6	1	0	95	22.4	26.7	-1	1	-35	0	1	0.4	90	300	-9	-9	-9	2	-1	0	0	9
1	6	0	0.3	1.1	0	10	10.9	1	2.6	1	0	95	22.4	26.7	1	1	-35	0	-1	0.4	90	300	-9	-9	-9	2	-1	0	0	9
1	53	1	0.6	1.9	0	10	10.2	1	2.6	1	0	95	23.5	26.7	0	1	-27	0	0	0.4	90	300	3	623	15	2	-1	0	0	9
2	43	1	0.1	2.7	0	10	6.1	1	2.6	1	0	95	24.1	26.7	1	1	-17	0	-1	0.4	90	300	2	622	300	2	-1	0	0	3
2	46	1	0.1	2.9	0	10	5.5	1	2.6	1	-1	95	24.1	26.7	0	1	-17	0	0	0.4	90	300	4	624	15	2	-1	0	0	3
1	33	0	0.1	1.6	0	10	10.8	1	2.6	1	0	95	22.7	26.8	0	1	-30	0	-1	0.4	90	300	-9	-9	-9	2	-1	0	0	9
1	38	0	0.8	1.7	0	10	10.7	1	2.6	1	0	95	22.7	26.8	0	1	-29	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
1	40	0	0.9	1.7	0	10	10.6	1	2.6	1	0	95	22.7	26.8	0	1	-29	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
1	46	0	0.2	1.8	0	10	10.4	1	2.6	1	0	95	23	26.7	0	1	-28	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
1	47	0	0.5	1.8	0	10	10.4	1	2.6	1	0	95	23	26.7	0	1	-28	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
2	21	0	0.5	2.2	0	10	9.8	1	2.6	1	1	95	23.5	26.7	0	1	-23	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
2	32	0	0.5	2.6	0	10	8.3	1	2.6	1	-1	95	24.1	26.7	0	1	-21	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
2	37	0	1	2.6	0	10	7.3	1	2.6	1	1	95	24.1	26.7	0	1	-20	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
2	39	0	0.9	2.7	0	10	6.9	1	2.6	1	1	95	24.1	26.7	0	1	-19	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
2	51	0	1	2.9	0	10	4.5	1	2.6	1	-1	95	24.1	26.7	0	1	-17	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
4	26	1	0.1	3	0	10	2.8	0.6	2.6	1	0	95	24.4	26.7	0	1	1	0	0	0.4	90	300	3	623	15	2	-1	0	0	9
4	31	0	0.8	3.1	0	10	2.5	0.6	2.6	1	0	95	24.4	26.7	0	1	2	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
4	32	0	0.8	3.1	0	10	2.4	0.6	2.6	1	0	95	24.4	26.7	0	1	2	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
4	39	0	0.2	3.2	0	10	1.9	0.6	2.6	1	0	95	24.4	26.7	0	1	4	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
4	40	0	0.4	3.2	0	10	1.9	0.6	2.6	1	0	95	24.4	26.7	0	1	4	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
4	45	0	0.6	3.3	0	10	1.5	0.6	2.6	1	0	95	24.4	26.7	0	1	5	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9
5	14	0	0.4	3.8	0	10	1.2	0.6	2.6	0	0	95	24.4	26.8	0	1	11	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
5	25	0	0.5	3.9	0	10	1.4	0.6	2.6	0	0	95	24.4	26.8	0	1	13	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
5	29	0	0.8	4	0	10	1.5	0.6	2.6	0	0	95	24.5	26.7	0	1	14	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
5	31	0	0.8	4	0	10	1.5	0.6	2.6	0	0	95	24.3	26.7	0	1	15	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
5	35	0	0.2	4.1	0	10	1.6	0.6	2.6	0	0	95	24.3	26.7	0	1	16	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
5	37	0	0.3	4.1	0	10	1.7	0.6	2.6	0	0	95	24.3	26.7	0	1	16	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	3
5	42	0	1	4.2	0	10	1.8	0.6	2.6	0	0	95	24.3	26.7	0	1	17	0	0	0.4	90	300	-9	-9	-9	2	-1	0	0	9

EOF

CG-6018 Oct 28 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
23	54	1	0.3	0	0	15	7.4	0.2	4.6	1	0	95	26.6	26.5	0	1	-53	0	0	0.3	75	300	2	611	300	3	0	1	1	1
23	56	1	0.3	0.1	0	15	7.4	0.2	4.6	1	0	95	26.7	26.5	0	1	-53	0	0	0.3	75	300	2	611	300	3	0	1	1	1
0	2	1	0.3	0.2	0	15	9.8	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	4	615	30	3	0	1	1	3
0	4	1	0.3	0.2	0	15	9.7	0.2	4.6	1	0	95	26.7	26.5	0	1	-53	0	0	0.3	75	300	4	615	30	3	0	1	1	1
0	7	1	0.2	0.3	0	15	9.7	0.2	4.6	1	0	95	26.7	26.5	0	1	-53	0	0	0.3	75	300	1	610	35	3	0	1	1	1
0	20	1	0.2	0.5	0	15	9.4	0.2	4.6	1	0	95	26.7	26.5	0	1	-53	0	0	0.3	75	300	4	615	30	3	0	1	1	1
0	31	1	0.6	0.7	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	4	615	30	3	0	1	1	3
0	50	1	0.7	1	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	1	1	-54	0	0	0.3	75	300	4	615	30	3	0	1	1	3
23	54	0	0.6	0	0	15	7.4	0.2	4.6	1	0	95	26.6	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
23	57	0	0.2	0.1	0	15	7.4	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	3
0	1	0	0.2	0.1	0	15	9.8	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	3
0	6	0	0.8	0.2	0	15	9.7	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	9
0	8	0	0.7	0.3	0	15	9.6	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	8	0	0.9	0.3	0	15	9.6	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	3
0	10	0	0.9	0.3	0	15	9.6	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	3
0	11	0	0.8	0.3	0	15	9.6	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	16	0	0.5	0.4	0	15	9.5	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	19	0	0.4	0.4	0	15	9.4	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	22	0	0.8	0.5	0	15	9.4	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	22	0	0.8	0.5	0	15	9.4	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	3
0	23	0	0	0.5	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	12
0	25	0	0	0.6	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	12
0	25	0	0.7	0.6	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	3
0	31	0	0.2	0.7	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	34	0	0.6	0.7	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	3
0	35	0	0.3	0.7	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	-1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	37	0	0.1	0.8	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	40	0	0.3	0.8	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	1	1	-53	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
0	46	0	0.8	0.9	0	15	9.3	0.2	4.6	1	0	95	26.7	26.5	1	1	-54	0	0	0.3	75	300	-9	-9	-9	3	0	1	1	3
0	10	0	0.7	0.3	0	15	9.6	0.2	4.6	1	0	95	26.7	26.5	1	1	-54	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	43	1	0.2	1.7	0	15	8.9	0.2	4.3	0	0	95	26.7	26.5	0	1	-48	0	0	0.3	75	300	2	611	35	3	0	0	1	1
0	57	0	0.1	1	0	15	9.3	0.2	3.9	0	0	95	26.7	26.5	1	1	-52	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	4	0	0.2	1.1	0	15	9.1	0.2	3.9	0	0	95	26.7	26.5	-1	1	-51	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	5	0	0.1	1.1	0	15	9.1	0.2	3.9	0	0	95	26.7	26.5	-1	1	-51	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	8	0	0.2	1.1	0	15	9.0	0.2	3.9	0	0	95	26.7	26.5	-1	1	-51	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	12	0	0.3	1.2	0	15	9.0	0.2	4.3	0	0	95	26.7	26.5	1	1	-51	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	14	0	0.3	1.2	0	15	8.9	0.2	4.3	0	0	95	26.7	26.5	1	1	-51	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	15	0	0.3	1.2	0	15	8.9	0.2	4.3	0	0	95	26.7	26.5	1	1	-51	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	24	0	0.2	1.4	0	15	8.7	0.2	4.3	0	0	95	26.7	26.5	-1	1	-50	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
1	27	0	0.4	1.4	0	15	8.7	0.2	4.3	0	0	95	26.7	26.5	-1	1	-50	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	3
1	29	0	0.4	1.5	0	15	8.8	0.2	4.3	0	0	95	26.7	26.5	-1	1	-50	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	3
1	35	0	0.2	1.6	0	15	8.8	0.2	4.3	0	0	95	26.7	26.5	1	1	-49	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3
1	38	0	0.2	1.6	0	15	8.9	0.2	4.3	0	0	95	26.7	26.5	1	1	-49	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3
1	41	0	0.2	1.7	0	15	8.9	0.2	4.3	0	0	95	26.7	26.5	-1	1	-49	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	3
1	50	0	0.4	1.8	0	15	9.0	0.2	4.3	0	0	95	26.7	26.5	-1	1	-48	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3
1	54	0	0.2	1.9	0	15	9.1	0.2	4.3	0	0	95	26.7	26.5	1	1	-47	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3
1	26	0	0.2	1.4	0	15	8.7	0.2	4.3	0	0	95	26.7	26.5	1	1	-50	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	26	1	0.4	2.4	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	0	1	-43	0	0	0.3	75	300	4	615	30	3	0	1	1	1
2	37	1	0.3	2.6	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	0	1	-41	0	0	0.3	75	300	4	615	30	3	0	1	1	1
2	39	1	0.3	2.6	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	0	1	-41	0	0	0.3	75	300	4	615	30	3	0	1	1	1
2	43	1	0.2	2.7	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	0	1	-40	0	0	0.3	75	300	2	611	35	3	0	1	1	1
2	45	1	0.2	2.7	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	0	1	-40	0	0	0.3	75	300	4	615	30	3	0	1	1	1
2	46	1	0.2	2.7	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	0	1	-40	0	0	0.3	75	300	2	611	35	3	0	1	1	1
1	54	1	0.1	2.9	0	15	9.1	0.2	4.3	0	0	95	26.8	26.6	0	1	-39	0	0	0.3	75	300	2	611	35	3	0	1	1	1
2	58	0	0.3	1.9	0	15	9.3	0.2	4.3	0	0	95	26.7	26.5	1	1	-47	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	1	0	0.3	2	0	15	9.1	0.2	4.3	0	0	95	26.7	26.5	1	1	-46	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	7	0	0.1	2.1	0	15	9.2	0.2	4.3	0	0	95	26.7	26.5	-1	1	-45	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	11	0	0.1	2.1	0	15	9.2	0.2	4.3	0	0	95	26.7	26.5	-1	1	-45	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	13	0	0.2	2.2	0	15	9.2	0.2	4.3	0	0	95	26.7	26.5	1	1	-44	0	0	0.3	75	300	-9	-9	-9	3	0	0	1	9

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TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
2	15	0	0.1	2.2	0	15	9.2	0.2	4.3	0	0	95	26.7	26.5	1	1	-44	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	15	0	0.6	2.2	0	15	9.2	0.2	4.3	0	0	95	26.7	26.5	-1	1	-44	0	1	0.3	75	300	-9	-9	-9	3	0	1	1	3
2	22	0	0.4	2.3	0	15	9.3	0.2	4.3	0	0	95	26.7	26.5	-1	1	-44	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	24	0	0.4	2.4	0	15	9.3	0.2	4.3	0	0	95	26.7	26.5	-1	1	-43	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	36	0	0.4	2.5	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	1	1	-41	0	-1	0.3	75	300	-9	-9	-9	3	0	1	1	3
2	41	0	0.5	2.6	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	-1	1	-41	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	43	0	0.6	2.7	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	1	1	-40	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	50	0	0.6	2.8	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	-1	1	-39	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	52	0	0.6	2.8	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	-1	1	-39	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
2	54	0	0.6	2.9	0	15	9.3	0.2	4.3	0	0	95	26.8	26.6	-1	1	-38	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	45	1	0.2	3.7	0	15	9.0	0.2	4.3	1	0	95	27	26.5	-1	1	-29	0	1	0.3	75	300	2	611	35	3	0	0	1	3
3	48	1	0.1	3.7	0	15	8.9	0.2	4.3	1	0	95	26.8	26.6	-1	1	-29	0	1	0.3	75	300	2	611	35	3	0	0	1	3
2	59	0	0.2	2.9	0	15	9.4	0.2	4.3	1	0	95	26.8	26.6	1	1	-38	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	2	0	0.4	3	0	15	9.4	0.2	4.3	1	0	95	26.8	26.6	1	1	-37	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	8	0	0.1	3.1	0	15	9.5	0.2	4.3	1	0	95	26.8	26.6	-1	1	-36	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	13	0	0.1	3.1	0	15	9.5	0.2	4.3	1	0	95	26.8	26.6	-1	1	-35	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	15	0	0.2	3.2	0	15	9.6	0.2	4.3	1	0	95	26.8	26.6	1	1	-34	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	17	0	0.2	3.2	0	15	9.6	0.2	4.3	1	0	95	26.8	26.6	1	1	-34	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	23	0	0.3	3.3	0	15	9.7	0.2	4.3	1	0	95	26.8	26.6	-1	1	-33	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	26	0	0.3	3.4	0	15	9.7	0.2	4.3	1	0	95	27	26.5	-1	1	-33	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	27	0	0.5	3.4	0	15	9.6	0.2	4.3	1	0	95	27	26.5	1	1	-33	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3
3	29	0	0.3	3.4	0	15	9.6	0.2	4.3	1	0	95	27	26.5	-1	1	-33	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	3
3	37	0	0.4	3.5	0	15	9.3	0.2	4.3	1	0	95	27	26.5	1	1	-31	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3
3	38	0	0.3	3.6	0	15	9.2	0.2	4.3	1	0	95	27	26.5	1	1	-30	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3
3	41	0	0.4	3.6	0	15	9.1	0.2	4.3	1	0	95	27	26.5	1	1	-30	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3
3	44	0	0.4	3.7	0	15	9.0	0.2	4.3	1	0	95	27	26.5	-1	1	-29	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	9
3	47	0	0.1	3.7	0	15	8.9	0.2	4.3	1	0	95	27	26.5	-1	1	-29	0	1	0.3	75	300	-9	-9	-9	3	0	0	1	3
3	56	0	0.1	3.9	0	15	8.6	0.2	4.3	1	0	95	26.9	26.5	1	1	27	0	-1	0.3	75	300	-9	-9	-9	3	0	0	1	3

EOF

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TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
1	25	1	0.2	1.5	0	15	12.1	0.8	3.2	1	1	91	26.4	26.6	1	1	-59	0	0	0.1	90	300	1	610	300	1	0	0	1	9
0	0	0	0.6	0.1	0	15	10.7	0.8	3.2	1	-1	91	26.7	26.6	-1	1	-44	0	0	0.1	90	300	-9	-9	-9	1	1	0	1	9
0	12	0	0.3	0.3	0	15	10.7	0.8	3.2	1	1	91	26.7	26.6	1	1	-46	0	0	0.1	90	300	-9	-9	-9	1	1	0	1	9
0	15	1	0.3	0.3	0	15	10.7	0.8	3.2	1	-1	91	26.7	26.6	-1	1	-46	0	0	0.1	90	300	3	612	70	1	1	0	1	9
0	19	0	0.6	0.4	0	15	10.7	0.8	3.2	1	-1	91	26.7	26.6	-1	1	-47	0	0	0.1	90	300	-9	-9	-9	1	0	0	1	9
0	25	0	0.3	0.5	0	15	9.9	0.8	3.2	1	1	91	26.6	26.7	1	1	-49	0	0	0.1	90	300	-9	-9	-9	1	0	0	1	9
0	30	0	0.4	6	0	15	9.9	0.8	3.2	1	1	91	26.6	26.7	1	1	-50	0	0	0.1	90	300	-9	-9	-9	1	1	0	1	9
0	58	0	0.3	1	0	15	10.1	0.8	3.2	1	-1	91	26.5	26.6	-1	1	-55	0	0	0.1	90	300	-9	-9	-9	1	0	0	1	9
1	3	0	0.6	1.1	0	15	10.1	0.8	3.2	1	1	91	26.5	26.6	1	1	-55	0	0	0.1	90	300	-9	-9	-9	1	0	0	1	9
1	12	0	0.9	1.3	0	15	10.1	0.8	3.2	1	-1	91	26.5	26.6	-1	1	-57	0	0	0.1	90	300	-9	-9	-9	1	0	0	1	9
1	42	1	0.2	1.6	0	15	12.1	0.8	3.3	1	0	91	26.5	26.5	1	1	-61	0	0	0.1	90	300	1	610	300	1	1	0	1	10
2	57	1	0.4	2.9	0	15	12.6	0.8	3.3	1	1	91	26.2	26.5	1	1	-63	0	1	0.1	90	300	4	613	6	1	0	1	1	2
1	48	0	0.9	1.7	0	15	12.1	0.8	3.3	1	0	91	26.5	26.5	0	1	-61	0	1	0.1	90	300	-9	-9	-9	1	1	0	1	9
1	54	0	0.5	1.8	0	15	12.1	0.8	3.3	1	0	91	26.5	26.5	0	1	-63	0	-1	0.1	90	300	-9	-9	-9	1	0	0	1	9
2	0	0	0.7	1.9	0	15	12.2	0.8	3.3	1	0	91	26.4	26.6	0	1	-63	0	-1	0.1	90	300	-9	-9	-9	1	1	0	1	9
2	3	0	0.3	1.9	0	15	12.2	0.8	3.3	1	0	91	26.4	26.6	0	1	-63	0	1	0.1	90	300	-9	-9	-9	1	1	0	1	9
2	7	0	0.5	2	0	15	12.2	0.8	3.3	1	0	91	26.4	26.6	0	1	-64	0	1	0.1	90	300	-9	-9	-9	1	0	0	1	9
2	35	0	0.5	2.5	0	15	12.6	0.8	3.3	1	0	91	26.5	26.5	0	1	-66	0	-1	0.1	90	300	-9	-9	-9	1	0	1	1	3
2	45	0	0.5	2.7	0	15	12.6	0.8	3.3	1	0	91	26.5	26.5	0	1	-66	0	1	0.1	90	300	-9	-9	-9	1	0	1	1	3
2	52	0	0.7	2.8	0	15	12.6	0.8	3.3	1	0	91	26.5	26.5	0	1	-66	0	-1	0.1	90	300	-9	-9	-9	1	0	1	1	3
5	12	1	0.2	3.3	0	15	8.2	0.8	2.3	1	1	91	25.5	26.4	1	1	-51	0	-1	0.1	90	300	2	611	30	1	1	0	1	10
5	31	1	0.2	3.6	0	15	8.6	0.8	2.3	1	0	91	25.3	26.4	1	1	-48	0	-1	0.1	90	300	3	613	6	1	1	0	1	7
6	23	1	0.2	4.5	0	15	7.8	0.8	2.3	1	0	91	25.2	26.4	1	1	-36	0	-1	0.1	90	300	4	612	70	1	0	1	1	1
5	17	0	0.8	3.4	0	15	8.2	0.8	2.3	1	0	91	25.5	26.4	0	1	-50	0	0	0.1	90	300	-9	-9	-9	1	1	0	1	9
5	23	0	0.5	3.5	0	15	8.2	0.8	2.3	1	0	91	25.5	26.4	0	1	-49	0	0	0.1	90	300	-9	-9	-9	1	0	0	1	9
5	29	0	0.7	3.6	0	15	8.6	0.8	2.3	1	0	91	25.3	26.4	0	1	-48	0	0	0.1	90	300	-9	-9	-9	1	1	0	1	9
5	36	0	0.5	3.7	0	15	8.6	0.8	2.3	1	0	91	25.3	26.4	0	1	-46	0	0	0.1	90	300	-9	-9	-9	1	0	0	1	9
6	2	0	0.6	4.1	0	15	7.8	0.8	2.3	1	0	91	25.2	26.4	0	1	-41	0	0	0.1	90	300	-9	-9	-9	1	0	1	1	3
6	12	0	0.5	4.3	0	15	7.8	0.8	2.3	1	0	91	25.2	26.4	0	1	-39	0	0	0.1	90	300	-9	-9	-9	1	0	1	1	3
6	19	0	0.7	4.4	0	15	7.8	0.8	2.3	1	0	91	25.2	26.4	0	1	-38	0	0	0.1	90	300	-9	-9	-9	1	0	1	1	3

EOF

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TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
0	26	1	0.3	0.2	0	15	9.9	0.8	3.3	1	1	91	26.6	26.7	1	1	-48	0	0	0.1	90	300	3	618	40	1	1	0	0	9
0	45	1	0.4	0.6	0	15	10	0.8	3.3	1	1	91	26.6	26.7	1	1	-51	0	0	0.1	90	300	3	618	40	1	1	0	0	9
0	14	0	0.6	0.1	0	15	10.2	0.8	3.3	1	-1	91	26.7	26.6	-1	1	-46	0	0	0.1	90	300	-9	-9	-9	1	1	0	0	9
0	29	0	0	0.3	0	15	9.9	0.8	3.3	1	0	91	26.6	26.7	0	1	-50	0	0	0.1	90	300	-9	-9	-9	1	1	0	0	12
0	34	0	0.6	0.4	0	15	10	0.8	3.3	1	-1	91	26.6	26.7	-1	1	-50	0	-1	0.1	90	300	-9	-9	-9	1	0	0	0	9
0	40	0	0.4	0.5	0	15	10	0.8	3.3	1	1	91	26.6	26.7	1	1	-51	0	0	0.1	90	300	-9	-9	-9	1	0	0	0	9
1	9	0	0.6	1	0	15	11	0.8	3.3	1	-1	91	26.5	26.6	-1	1	-57	0	0	0.1	90	300	-9	-9	-9	1	0	0	0	9
1	11	0	0.7	1	0	15	11.2	0.8	3.3	1	1	91	26.5	26.6	1	1	-57	0	0	0.1	90	300	-9	-9	-9	1	0	0	0	9
1	20	0	0.9	1.2	0	15	11.8	0.8	3.3	1	-1	91	26.5	26.6	-1	1	-59	0	0	0.1	90	300	-9	-9	-9	1	0	0	0	9
1	32	0	0.2	1.4	0	15	12.1	0.8	3.3	1	1	91	26.5	26.5	1	1	-60	0	0	0.1	90	300	-9	-9	-9	1	0	0	0	9
1	56	1	0.3	1.5	0	15	12.2	0.8	3.3	1	0	91	26.4	26.6	0	1	-63	0	-1	0.1	90	300	1	616	50	1	1	0	0	9
2	5	1	0.9	1.7	0	15	12.3	0.8	3.3	1	0	91	26.4	26.6	0	1	-64	0	1	0.1	90	300	3	618	10	1	1	0	0	8.5
2	10	0	0.3	1.7	0	15	12.4	0.8	3.3	1	0	91	26.4	26.6	0	1	-64	0	-1	0.1	90	300	-9	-9	-9	1	0	0	0	9
2	16	0	0.7	1.8	0	15	12.5	0.8	3.3	1	0	91	26.4	26.6	0	1	-65	0	-1	0.1	90	300	-9	-9	-9	1	1	0	0	9
2	17	0	0.4	1.9	0	15	12.5	0.8	3.3	1	0	91	26.4	26.6	0	1	-65	0	1	0.1	90	300	-9	-9	-9	1	1	0	0	9
2	22	0	0.5	1.9	0	15	12.6	0.8	3.3	1	0	91	26.4	26.6	0	1	-65	0	1	0.1	90	300	-9	-9	-9	1	0	0	0	9
2	29	0	1.3	2.2	0	15	12.6	0.8	3.3	1	0	91	26.5	26.5	0	1	-66	0	1	0.1	90	300	-9	-9	-9	1	1	0	0	3
2	46	0	0.4	2.3	0	15	12.6	0.8	3.3	1	0	91	26.5	26.5	0	1	-67	0	-1	0.1	90	300	-9	-9	-9	1	0	0	0	3
2	56	0	0.6	2.5	0	15	12.6	0.8	3.3	1	0	91	26.2	26.5	0	1	-67	0	1	0.1	90	300	-9	-9	-9	1	0	0	0	3
3	2	0	0.4	2.6	0	15	12.2	0.8	3.3	1	0	91	26.2	26.5	0	1	-67	0	-1	0.1	90	300	-9	-9	-9	1	0	0	0	3
3	7	0	0.3	2.7	0	15	11.9	0.8	3.3	1	0	91	26.2	26.5	0	1	-67	0	1	0.1	90	300	-9	-9	-9	1	0	0	0	3
4	55	1	0.1	2.9	0	15	8.2	0.8	2.3	1	0	91	25.5	26.4	0	1	-54	0	0	0.1	90	300	3	618	10	1	1	0	0	9
5	12	1	0.2	3.2	0	15	8.4	0.8	2.3	1	0	91	25.5	26.4	0	1	-51	0	0	0.1	90	300	3	618	10	1	1	0	0	9
4	59	0	0.7	3	0	15	8.3	0.8	2.3	1	0	91	25.5	26.4	0	1	-55	0	0	0.1	90	300	-9	-9	-9	1	1	0	0	9
5	4	0	0.4	3	0	15	8.3	0.8	2.3	1	0	91	25.5	26.4	0	1	-52	0	0	0.1	90	300	-9	-9	-9	1	0	0	0	9
5	10	0	0.7	3.1	0	15	8.4	0.8	2.3	1	0	91	25.5	26.4	0	1	-52	0	0	0.1	90	300	-9	-9	-9	1	1	0	0	9
5	17	0	0.5	3.2	0	15	8.5	0.8	2.3	1	0	91	25.5	26.4	0	1	-50	0	0	0.1	90	300	-9	-9	-9	1	0	0	0	9
5	41	0	0.7	3.6	0	15	8.2	0.8	2.3	1	0	91	25.3	26.4	0	1	-46	0	0	0.1	90	300	-9	-9	-9	1	1	0	0	3
5	51	0	0.5	3.8	0	15	7.9	0.8	2.3	1	0	91	25.3	26.4	0	1	-43	0	0	0.1	90	300	-9	-9	-9	1	1	0	0	3
5	59	0	0.7	3.9	0	15	7.9	0.8	2.3	1	0	91	25.2	26.4	0	1	-42	0	0	0.1	90	300	-9	-9	-9	1	1	0	0	3
6	3	0	0.1	4	0	15	8.1	0.8	2.3	1	0	91	25.2	26.4	0	1	-41	0	0	0.1	90	300	-9	-9	-9	1	1	0	0	3
EOF																														

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TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
1	25	1	0.6	0.9	0	10	8.9	0.2	3.3	1	0	86	25.5	25.7	0	1	-28	0	0	0	85	300	4	614	30	2	-1	1	1	3
1	35	1	0.5	1	0	10	9.2	0.2	3.3	1	0	86	25.5	25.7	0	1	-30	0	0	0	85	300	2	611	300	2	-1	1	1	2
1	48	1	0.3	1.3	0	10	9.5	0.2	3.3	1	0	86	25.5	25.7	0	1	-32	0	0	0	85	300	2	611	300	2	-1	1	1	2.5
0	47	0	0.6	0.3	0	10	8.1	0.2	3	1	0	86	25.5	25.7	0	1	-20	0	0	0	85	300	-9	-9	-9	2	-1	0	1	9
0	59	0	0.5	0.5	0	10	8.7	0.2	3	1	0	86	25.5	25.7	0	1	-23	0	0	0	85	300	-9	-9	-9	2	-1	0	1	9
1	3	0	0.4	0.5	0	10	8.8	0.2	3	1	0	86	25.5	25.7	0	1	-23	0	0	0	85	300	-9	-9	-9	2	-1	0	1	9
1	12	0	0.6	0.7	0	10	8.8	0.2	3.3	1	0	86	25.5	25.7	0	1	-25	0	0	0	85	300	-9	-9	-9	2	-1	0	1	9
1	43	0	0.7	1.2	0	10	9.4	0.2	3.3	1	0	86	25.5	25.7	0	1	-30	0	0	0	85	300	-9	-9	-9	2	-1	1	1	3
3	10	1	0.1	2.5	0	10	9.1	0.2	3.3	1	0	86	25.5	26.7	0	1	-43	0	-1	0	90	300	2	611	300	2	-1	1	1	1
2	18	0	0.7	1.6	0	10	9.2	0.2	3.3	1	1	86	25.5	26.7	-1	1	-37	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
2	31	0	0.3	1.8	0	10	9.1	0.2	3.3	1	-1	86	25.5	26.7	1	1	-39	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
2	34	0	0.6	1.9	0	10	9.2	0.2	3.3	1	1	86	25.5	26.7	-1	1	-39	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
2	39	0	0.7	2	0	10	9.2	0.2	3.3	1	1	86	25.5	26.7	-1	1	-39	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
2	44	0	0.4	2.1	0	10	9.2	0.2	3.3	1	-1	86	25.5	26.7	1	1	-40	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
2	49	0	0.4	2.1	0	10	9.3	0.2	3.3	1	-1	86	25.5	26.7	1	1	-41	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
3	3	0	0.8	2.4	0	10	9.2	0.2	3.3	1	1	86	25.5	26.7	-1	1	-42	0	0	0	90	300	-9	-9	-9	2	-1	1	1	3
3	13	0	0.6	2.6	0	10	9.1	0.2	3.3	1	1	86	25.5	26.7	-1	1	-43	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
3	17	0	0.3	2.6	0	10	9.0	0.2	3.3	1	-1	86	25.5	26.7	1	1	-43	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
3	26	0	0.5	2.8	0	10	8.9	0.2	3.3	1	1	86	25.5	26.7	-1	1	-45	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
3	38	0	0.5	3	0	10	9.1	0.2	3.3	1	-1	86	25.5	26.7	1	1	-46	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
6	1	1	0.3	3.9	0	10	11.3	0.2	3.3	1	0	86	25.3	26.7	0	1	-44	0	0	0	90	300	2	611	300	2	-1	1	1	1
5	9	0	0.7	3	0	10	11.7	0.2	3.3	1	1	86	25.4	26.6	-1	1	-48	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
5	21	0	0.3	3.2	0	10	12.1	0.2	3.3	1	-1	86	25.4	26.6	1	1	-47	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
5	29	0	0.6	3.4	0	10	12.1	0.2	3.3	1	1	86	25.3	26.7	-1	1	-47	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
5	35	0	0.3	3.5	0	10	11.9	0.2	3.3	1	-1	86	25.3	26.7	1	1	-47	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
5	54	0	0.9	3.8	0	10	11.3	0.2	3.3	1	1	86	25.3	26.7	-1	1	-45	0	0	0	90	300	-9	-9	-9	2	-1	1	1	3
6	4	0	0.6	4	0	10	11.3	0.2	3.3	1	1	86	25.3	26.7	-1	1	-45	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
6	8	0	0.4	4	0	10	11.3	0.2	3.3	1	-1	86	25.3	26.7	1	1	-44	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
6	17	0	0.5	4.2	0	10	11.3	0.2	3.3	1	1	86	25.3	26.7	-1	1	-43	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9
6	30	0	0.6	4.4	0	10	11.3	0.2	3.3	1	-1	86	25.2	26.7	1	1	-42	0	0	0	90	300	-9	-9	-9	2	-1	0	1	9

EOF

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TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
1	5	1	0.2	0.1	0	10	8.8	0.2	3	1	0	86	25.5	26.7	0	1	-24	0	0	0	90	300	3	620	10	2	-1	0	0	9
1	9	0	0.8	0.1	0	10	8.8	0.2	3	1	0	86	25.5	26.7	0	1	-25	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
1	15	0	0.3	0.2	0	10	8.8	0.2	3.3	1	0	86	25.5	26.7	0	1	-26	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
1	20	0	0.6	0.3	0	10	8.9	0.2	3.3	1	0	86	25.5	26.7	0	1	-27	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
1	22	0	0.4	0.3	0	10	8.9	0.2	3.3	1	0	86	25.5	26.7	0	1	-27	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
1	27	0	0.6	0.5	0	10	8.9	0.2	3.3	1	0	86	25.5	26.7	0	1	-29	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
1	30	0	0.5	0.5	0	10	9.0	0.2	3.3	1	0	86	25.5	26.7	0	1	-29	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
1	39	0	0.6	0.6	0	10	9.3	0.2	3.3	1	0	86	25.5	26.7	0	1	-30	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
1	50	0	0.4	0.8	0	10	9.6	0.2	3.3	1	0	86	25.5	26.7	0	1	-33	0	-1	0	90	300	-9	-9	-9	2	-1	0	0	3
1	59	0	0.7	1	0	10	9.6	0.2	3.3	1	0	86	25.5	26.7	0	1	-34	0	1	0	90	300	-9	-9	-9	2	-1	0	0	3
2	6	0	0.7	1.1	0	10	9.5	0.2	3.3	1	0	86	25.5	26.7	0	1	-35	0	-1	0	90	300	-9	-9	-9	2	-1	0	0	3
2	10	0	0.3	1.2	0	10	9.4	0.2	3.3	1	0	86	25.5	26.7	0	1	-36	0	1	0	90	300	-9	-9	-9	2	-1	0	0	3
3	3	1	0.3	1.9	0	10	9.2	0.2	3.3	1	-1	86	25.5	26.7	1	1	-43	0	0	0	90	300	3	620	10	2	-1	0	0	9
2	38	0	0.8	1.4	0	10	9.2	0.2	3.3	1	1	86	25.5	26.7	-1	1	-39	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
2	50	0	0.3	1.6	0	10	9.3	0.2	3.3	1	-1	86	25.5	26.7	1	1	-41	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
2	52	0	0.6	1.7	0	10	9.3	0.2	3.3	1	1	86	25.5	26.7	-1	1	-41	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
2	57	0	0.6	1.8	0	10	9.3	0.2	3.3	1	1	86	25.5	26.7	-1	1	-42	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
3	7	0	0.4	1.9	0	10	9.1	0.2	3.3	1	-1	86	25.5	26.7	1	1	-43	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
3	21	0	0.9	2.2	0	10	9.0	0.2	3.3	1	1	86	25.5	26.7	-1	1	-44	0	0	0	90	300	-9	-9	-9	2	-1	0	0	3
3	28	0	0.1	2.3	0	10	8.9	0.2	3.3	1	-1	86	25.5	26.7	1	1	-45	0	0	0	90	300	-9	-9	-9	2	-1	0	0	3
3	31	0	0.7	2.3	0	10	9.0	0.2	3.3	1	1	86	25.5	26.7	-1	1	-45	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
3	34	0	0.4	2.4	0	10	9.0	0.2	3.3	1	-1	86	25.5	26.7	1	1	-45	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
3	43	0	0.7	2.5	0	10	9.1	0.2	3.3	1	1	86	25.5	26.7	-1	1	-46	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
3	55	0	0.5	2.7	0	10	9.3	0.2	3.3	1	-1	86	25.5	26.7	1	1	-47	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
4	49	0	0.9	2.9	0	10	11.2	0.2	3.3	1	1	86	25.4	26.6	-1	1	-48	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
5	1	0	0.3	3	0	10	11.4	0.2	3.3	1	-1	86	25.4	26.6	1	1	-48	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
5	4	0	0.7	3.1	0	10	11.6	0.2	3.3	1	1	86	25.4	26.6	-1	1	-48	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
5	8	0	0.6	3.2	0	10	11.7	0.2	3.3	1	1	86	25.4	26.6	-1	1	-48	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
5	13	0	0.4	3.2	0	10	11.8	0.2	3.3	1	-1	86	25.4	26.6	1	1	-47	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
5	18	0	0.4	3.3	0	10	12.0	0.2	3.3	1	-1	86	25.4	26.6	1	1	-47	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
5	31	0	0.8	3.6	0	10	12.0	0.2	3.3	1	1	86	25.4	26.6	-1	1	-46	0	0	0	90	300	-9	-9	-9	2	-1	0	0	3
5	38	0	0.3	3.7	0	10	11.8	0.2	3.3	1	-1	86	25.4	26.6	1	1	-46	0	0	0	90	300	-9	-9	-9	2	-1	0	0	3
5	42	0	0.5	3.7	0	10	11.7	0.2	3.3	1	1	86	25.4	26.6	-1	1	-46	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
5	44	0	0.3	3.8	0	10	11.6	0.2	3.3	1	1	86	25.4	26.6	-1	1	-46	0	0	0	90	300	-9	-9	-9	2	-1	0	0	3
5	53	0	0.6	3.9	0	10	11.4	0.2	3.3	1	1	86	25.4	26.6	-1	1	-45	0	0	0	90	300	-9	-9	-9	2	-1	0	0	9
6	5	0	0.6	4.1	0	10	11.3	0.2	3.3	1	-1	86	25.4	26.6	1	1	-44	0	-1	0	90	300	-9	-9	-9	2	-1	0	0	9
EOF																														

CG-6018 NOV 5 1994

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
0	13	1	0.7	0.1	0	10	12.6	0.2	4.6	1	0	65	25.6	26.5	0	1	-6	0	0	0.2	75	300	2	610	300	3	0	1	1	2
0	15	1	0.7	0.1	0	10	12.7	0.2	4.6	1	1	65	25.6	26.5	-1	1	-6	0	-1	0.2	75	300	4	616	50	3	0	1	1	3
0	20	1	0.3	0.2	0	10	12.8	0.2	4.6	1	1	65	25.6	26.5	-1	1	-7	0	-1	0.2	75	300	3	615	300	3	0	0	1	9
0	42	1	0.3	0.6	0	10	13.0	0.2	4.6	1	0	65	25.6	26.5	0	1	-12	0	0	0.2	75	300	2	610	300	3	0	1	1	1.5
0	48	1	0	0.7	0	10	13.0	0.2	4.6	1	0	65	25.6	26.5	0	1	-13	0	0	0.2	75	300	2	610	300	3	0	1	1	1
0	51	1	0.2	0.7	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-13	0	1	0.2	75	300	4	616	50	3	0	1	1	3
0	53	1	0	0.7	0	10	13.0	0.2	4.6	1	0	65	25.6	26.5	0	1	-14	0	0	0.2	75	300	4	616	50	3	0	1	1	2
0	56	1	0.1	0.8	0	10	13.0	0.2	4.6	1	0	65	25.6	26.5	0	1	-14	0	0	0.2	75	300	2	610	300	3	0	1	1	1
1	7	1	0.4	1	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-16	0	1	0.2	75	300	4	616	50	3	0	1	1	3
0	10	0	0.2	0	0	10	12.5	0.2	4.6	1	0	65	25.6	26.5	-1	1	-5	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	14	0	0.7	0.1	0	10	12.7	0.2	4.6	1	1	65	25.6	26.5	-1	1	-6	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	19	0	0.2	0.2	0	10	12.8	0.2	4.6	1	1	65	25.6	26.5	-1	1	-7	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	21	0	0.2	0.2	0	10	12.9	0.2	4.6	1	1	65	25.6	26.5	-1	1	-7	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	24	0	0.5	0.3	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-8	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	25	0	0.6	0.3	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-8	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	28	0	0.3	0.3	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-9	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	29	0	0.2	0.3	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-9	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	30	0	0.3	0.3	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-9	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	34	0	0.3	0.4	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-10	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	34	0	0.9	0.4	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-10	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	35	0	0.8	0.4	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-10	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	36	0	0.7	0.4	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-11	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	36	0	0.9	0.4	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-11	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	39	0	0.8	0.5	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-11	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	39	0	0.1	0.5	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-11	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	40	0	1	0.5	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-11	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	40	0	0.5	0.5	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-11	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	41	0	1	0.5	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-11	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	45	0	0.4	0.6	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-12	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	52	0	0.7	0.7	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-13	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	53	0	0.9	0.7	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-13	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	55	0	0.5	0.8	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-14	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	57	0	0.7	0.8	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-15	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
0	59	0	0.6	0.8	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-15	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	3	0	1	0.9	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-16	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
1	8	0	1	1	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-16	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
0	25	0	1	0.3	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-20	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	15	1	0.7	1.1	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-18	0	-1	0.2	75	300	2	610	300	3	0	1	1	3
1	17	1	0.7	1.1	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-18	0	-1	0.2	75	300	2	610	300	3	0	1	1	3
1	25	1	0.4	1.2	0	10	13.0	0.2	4.6	1	-1	65	25.7	26.5	1	1	-20	0	1	0.2	75	300	2	610	300	3	0	1	1	3
1	45	1	0.3	1.6	0	10	12.6	0.2	4.6	1	0	65	25.7	26.5	0	1	-24	0	0	0.2	75	300	2	610	300	3	0	1	1	1
1	47	1	0.4	1.6	0	10	12.6	0.2	4.6	1	0	65	25.7	26.5	0	1	-25	0	0	0.2	75	300	2	610	300	3	0	1	1	1
1	50	1	0	1.7	0	10	12.5	0.2	4.6	1	0	65	25.7	26.5	0	1	-26	0	0	0.2	75	300	2	610	300	3	0	1	1	1
1	53	1	0.2	1.7	0	10	12.4	0.2	4.6	1	0	65	25.7	26.5	0	1	-26	0	0	0.2	75	300	2	610	300	3	0	1	1	2
1	55	1	0	1.7	0	10	12.4	0.2	4.6	1	0	65	25.6	26.5	0	1	-26	0	0	0.2	75	300	2	610	300	3	0	1	1	1
2	9	1	0.4	2	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-30	0	1	0.2	75	300	2	610	300	3	0	1	1	3
1	12	0	0	1	0	10	13.0	0.2	4.6	1	0	65	25.6	26.5	0	1	-18	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	12
1	16	0	0.8	1.1	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-18	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
1	20	0	0.2	1.2	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-19	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	22	0	0.2	1.2	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-19	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	23	0	0.1	1.2	0	10	13.0	0.2	4.6	1	1	65	25.6	26.5	-1	1	-19	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	27	0	0.5	1.3	0	10	13.0	0.2	4.6	1	1	65	25.7	26.5	-1	1	-21	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
1	30	0	0.3	1.3	0	10	12.9	0.2	4.6	1	-1	65	25.7	26.5	1	1	-21	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	31	0	0.2	1.3	0	10	12.9	0.2	4.6	1	-1	65	25.7	26.5	1	1	-21	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	32	0	0.3	1.3	0	10	12.9	0.2	4.6	1	-1	65	25.7	26.5	1	1	-21	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	36	0	1	1.4	0	10	12.8	0.2	4.6	1	1	65	25.7	26.5	-1	1	-22	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	36	0	0.8	1.4	0	10	12.8	0.2	4.6	1	-1	65	25.7	26.5	1	1	-22	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
1	37	0	0.7	1.4	0	10	12.8	0.2	4.6	1	-1	65	25.7	26.5	1	1	-22	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
1	38	0	0.8	1.5	0	10	12.7	0.2	4.6	1	-1	65	25.7	26.5	1	1	-23	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3

CG-6018 NOV 5 1994 (continued)

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
1	38	0	0.8	1.5	0	10	12.7	0.2	4.6	1	1	65	25.7	26.5	-1	1	-23	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	41	0	0.2	1.5	0	10	12.7	0.2	4.6	1	1	65	25.7	26.5	-1	1	-23	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	41	0	1	1.5	0	10	12.7	0.2	4.6	1	1	65	25.7	26.5	-1	1	-23	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	42	0	0.5	1.5	0	10	12.7	0.2	4.6	1	-1	65	25.7	26.5	1	1	-24	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	42	0	0.5	1.5	0	10	12.7	0.2	4.6	1	1	65	25.7	26.5	-1	1	-24	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
1	54	0	0.6	1.7	0	10	12.4	0.2	4.6	1	1	65	25.7	26.5	-1	1	-26	0	-1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	56	0	0.8	1.7	0	10	12.4	0.2	4.6	1	-1	65	25.6	26.5	1	1	-26	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
1	57	0	0.6	1.8	0	10	12.5	0.2	4.6	1	-1	65	25.6	26.5	1	1	-27	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
1	58	0	0.1	1.8	0	10	12.5	0.2	4.6	1	1	65	25.6	26.5	-1	1	-27	0	-1	0.2	75	300	-9	-9	-9	3	0	1	1	3
1	59	0	0.7	1.8	0	10	12.6	0.2	4.6	1	-1	65	25.6	26.5	1	1	-27	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	2	0	0.6	1.8	0	10	12.7	0.2	4.6	1	-1	65	25.6	26.5	1	1	-28	0	1	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	6	0	1	1.9	0	10	12.8	0.2	4.6	1	-1	65	25.6	26.5	1	1	-29	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	11	0	1	2	0	10	13.0	0.2	4.6	1	-1	65	25.6	26.5	1	1	-30	0	1	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	30	1	0.6	2.3	0	10	13.8	0.2	4.6	1	1	65	25.7	26.5	-1	1	-34	0	0	0.2	75	300	4	616	50	3	0	1	1	3
2	42	1	0.4	2.5	0	10	14.2	0.2	4.6	1	-1	65	25.7	26.5	1	1	-36	0	0	0.2	75	300	4	616	50	3	0	1	1	3
2	45	1	0.8	2.6	0	10	14.3	0.2	4.6	1	-1	65	25.7	26.5	1	1	-37	0	0	0.2	75	300	3	615	50	3	0	0	1	9
2	51	1	0.3	2.6	0	10	14.5	0.2	4.6	1	-1	65	25.7	26.5	1	1	-38	0	0	0.2	75	300	4	616	50	3	0	1	1	3
2	52	1	0.2	2.7	0	10	14.5	0.2	4.6	1	-1	65	25.7	26.5	1	1	-38	0	0	0.2	75	300	4	616	50	3	0	1	1	2
2	53	1	0.3	2.7	0	10	14.5	0.2	4.6	1	-1	65	25.7	26.5	1	1	-38	0	0	0.2	75	300	4	616	50	3	0	1	1	2
2	59	1	0.2	2.8	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-40	0	0	0.2	75	300	4	616	50	3	0	1	1	2
3	0	1	0.2	2.8	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-40	0	0	0.2	75	300	4	616	50	3	0	1	1	2
3	2	1	0.2	2.8	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-40	0	0	0.2	75	300	4	616	50	3	0	1	1	3
3	10	1	0.1	3	0	10	14.6	0.2	4.6	1	-1	65	25.6	26.5	1	1	-42	0	0	0.2	75	300	4	616	50	3	0	1	1	2
2	13	0	1	2	0	10	13.1	0.2	4.6	1	-1	65	25.6	26.5	1	1	-30	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	14	0	0.4	2	0	10	13.2	0.2	4.6	1	-1	65	25.7	26.5	1	1	-30	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	15	0	1.2	2.1	0	10	13.2	0.2	4.6	1	-1	65	25.7	26.5	1	1	-31	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	18	0	1.1	2.1	0	10	13.3	0.2	4.6	1	-1	65	25.7	26.5	1	1	-31	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	22	0	0.6	2.2	0	10	13.5	0.2	4.6	1	-1	65	25.7	26.5	1	1	-32	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	24	0	0.7	2.2	0	10	13.6	0.2	4.6	1	-1	65	25.7	26.5	1	1	-33	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	26	0	0.1	2.2	0	10	13.6	0.2	4.6	1	1	65	25.7	26.5	-1	1	-33	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	27	0	0.7	2.3	0	10	13.7	0.2	4.6	1	-1	65	25.7	26.5	1	1	-33	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	29	0	0.2	2.3	0	10	13.7	0.2	4.6	1	-1	65	25.7	26.5	1	1	-34	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	29	0	0.8	2.3	0	10	13.7	0.2	4.6	1	-1	65	25.7	26.5	1	1	-34	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	31	0	0.2	2.3	0	10	13.8	0.2	4.6	1	-1	65	25.7	26.5	1	1	-34	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	33	0	0.1	2.4	0	10	13.9	0.2	4.6	1	-1	65	25.7	26.5	1	1	-35	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	37	0	0.5	2.4	0	10	14.0	0.2	4.6	1	1	65	25.7	26.5	-1	1	-35	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	39	0	0.3	2.5	0	10	14.1	0.2	4.6	1	1	65	25.7	26.5	-1	1	-36	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	41	0	1.2	2.5	0	10	14.1	0.2	4.6	1	1	65	25.7	26.5	-1	1	-36	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	42	0	0.4	2.5	0	10	14.2	0.2	4.6	1	1	65	25.7	26.5	-1	1	-36	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	43	0	0.2	2.5	0	10	14.2	0.2	4.6	1	1	65	25.7	26.5	-1	1	-37	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	43	0	0.9	2.5	0	10	14.2	0.2	4.6	1	1	65	25.7	26.5	-1	1	-37	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	45	0	0.7	2.6	0	10	14.3	0.2	4.6	1	1	65	25.7	26.5	-1	1	-37	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	46	0	0.8	2.6	0	10	14.3	0.2	4.6	1	-1	65	25.7	26.5	1	1	-37	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	47	0	1	2.6	0	10	14.3	0.2	4.6	1	1	65	25.7	26.5	-1	1	-38	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	47	0	0.8	2.6	0	10	14.3	0.2	4.6	1	-1	65	25.7	26.5	1	1	-38	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	55	0	1.1	2.7	0	10	14.6	0.2	4.6	1	-1	65	25.7	26.5	1	1	-39	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
2	56	0	0.5	2.7	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-39	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	56	0	1.2	2.7	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-39	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	57	0	0.5	2.8	0	10	14.6	0.2	4.6	1	-1	65	25.6	26.5	1	1	-37	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
2	57	0	1.1	2.8	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-37	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
3	5	0	0.6	2.9	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-41	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	6	0	0.7	2.9	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-41	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	8	0	0.7	2.9	0	10	14.6	0.2	4.6	1	1	65	25.6	26.5	-1	1	-42	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	32	1	0.6	3.3	0	10	14.1	0.2	4.6	1	1	65	25.5	26.5	-1	1	-46	0	0	0.2	75	300	4	616	50	3	0	1	1	3
3	45	1	0.1	3.5	0	10	13.1	0.2	4.6	1	0	65	25.5	26.5	0	1	-49	0	0	0.2	75	300	2	610	300	3	0	1	1	1
3	53	1	0.3	3.6	0	10	12.6	0.2	4.6	1	-1	65	25.5	26.5	1	1	-51	0	0	0.2	75	300	2	610	300	3	0	1	1	2
3	55	1	0.3	3.7	0	10	12.4	0.2	4.6	1	-1	65	25.5	26.5	1	1	-51	0	0	0.2	75	300	2	610	300	3	0	1	1	3
3	56	1	0.2	3.7	0	10	12.4	0.2	4.6	1	0	65	25.5	26.5	0	1	-52	0	0	0.2	75	300	4	616	50	3	0	1	1	2
4	2	1	0.2	3.8	0	10	12.4	0.2	4.6	1	0	65	25.5	26.5	0	1	-53	0	0	0.2	75	300	4	616	50	3	0	1	1	2
4	5	1	0.2	3.8	0	10	12.4	0.2	4.6	1	0	65	25.5	26.5	0	1	-53	0	0	0.2	75	300	2	610	300	3	0	1	1	1

CG-6018 **NOV 5 1994 (continued)**

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
3	17	0	0.4	3	0	10	14.6	0.2	4.6	1	-1	65	25.5	26.5	1	1	-43	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	24	0	0.6	3.1	0	10	14.6	0.2	4.6	1	-1	65	25.5	26.5	1	1	-45	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
3	26	0	0.7	3.2	0	10	14.5	0.2	4.6	1	-1	65	25.5	26.5	1	1	-45	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
3	27	0	0.1	3.2	0	10	14.5	0.2	4.6	1	1	65	25.5	26.5	-1	1	-46	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	29	0	0.6	3.2	0	10	14.3	0.2	4.6	1	-1	65	25.5	26.5	1	1	-46	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
3	30	0	0.1	3.3	0	10	14.2	0.2	4.6	1	-1	65	25.5	26.5	1	1	-46	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	33	0	0.2	3.3	0	10	14.0	0.2	4.6	1	-1	65	25.5	26.5	1	1	-47	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	35	0	0.1	3.3	0	10	13.9	0.2	4.6	1	-1	65	25.5	26.5	1	1	-48	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	39	0	0.4	3.4	0	10	13.6	0.2	4.6	1	1	65	25.5	26.5	-1	1	-49	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	41	0	0.2	3.4	0	10	13.4	0.2	4.6	1	1	65	25.5	26.5	-1	1	-49	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	44	0	0.2	3.5	0	10	13.2	0.2	4.6	1	1	65	25.5	26.5	-1	1	-49	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	45	0	0.9	3.5	0	10	13.1	0.2	4.6	1	1	65	25.5	26.5	-1	1	-50	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
3	48	0	0.8	3.5	0	10	12.9	0.2	4.6	1	1	65	25.5	26.5	-1	1	-50	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
3	48	0	0.8	3.5	0	10	12.9	0.2	4.6	1	-1	65	25.5	26.5	1	1	-50	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	49	0	0.8	3.6	0	10	12.9	0.2	4.6	1	-1	65	25.5	26.5	1	1	-50	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	50	0	0.9	3.6	0	10	12.8	0.2	4.6	1	1	65	25.5	26.5	-1	1	-51	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
3	50	0	0.9	3.6	0	10	12.8	0.2	4.6	1	-1	65	25.5	26.5	1	1	-51	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
3	59	0	0.3	3.7	0	10	12.4	0.2	4.6	1	1	65	25.5	26.5	-1	1	-52	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
4	0	0	0.6	3.7	0	10	12.4	0.2	4.6	1	-1	65	25.5	26.5	1	1	-53	0	0	0.2	75	300	-9	-9	-9	3	0	0	1	9
4	4	0	0.2	3.8	0	10	12.4	0.2	4.6	1	1	65	25.5	26.5	-1	1	-53	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3
3	44	0	0.4	3.5	0	10	13.2	0.2	4.6	1	-1	65	25.5	26.5	1	1	-49	0	0	0.2	75	300	-9	-9	-9	3	0	1	1	3

EOF

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TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
23	59	1	0.2	0.2	0	10	13.4	0.2	4	1	0	65	25.6	26.5	-1	1	-3	0	0	0.2	75	300	3	##	10	3	0	0	0	9.5
0	0	0	0.3	0.2	0	10	12.2	0.2	4	1	1	65	25.6	26.5	-1	1	-3	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	2	0	0.3	0.3	0	10	12.3	0.2	4	1	1	65	25.6	26.5	-1	1	-3	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	8	0	0.3	0.4	0	10	12.5	0.2	4	1	-1	65	25.6	26.5	1	1	-4	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	9	0	0.2	0.4	0	10	12.5	0.2	4	1	-1	65	25.6	26.5	1	1	-5	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	10	0	0.3	0.4	0	10	12.5	0.2	4	1	-1	65	25.6	26.5	1	1	-5	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	19	0	0.1	0.5	0	10	12.8	0.2	4	1	1	65	25.6	26.5	-1	1	-7	0	-1	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	21	0	0.4	0.6	0	10	12.9	0.2	4	1	-1	65	25.6	26.5	1	1	-8	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	21	0	0.5	0.6	0	10	12.9	0.2	4	1	1	65	25.6	26.5	-1	1	-8	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
0	23	0	0.4	0.6	0	10	12.9	0.2	4	1	1	65	25.6	26.5	-1	1	-8	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
0	25	0	0.4	0.6	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-8	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
0	29	0	0.1	0.7	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-9	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	31	0	0.2	0.7	0	10	13.0	0.2	4	1	-1	65	25.6	26.5	1	1	-10	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
0	34	0	0.1	0.8	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-10	0	-1	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	37	0	0.1	0.8	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-11	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
0	40	0	0.5	0.9	0	10	13.0	0.2	4	1	-1	65	25.6	26.5	1	1	-11	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
0	47	0	0.4	1	0	10	13.0	0.2	4	1	-1	65	25.6	26.5	1	1	-13	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
0	52	0	0.3	1	0	10	13.0	0.2	4	1	0	65	25.6	26.5	0	1	-14	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	2	0	0.3	1.2	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-15	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	3	0	0.2	1.2	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-16	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	6	0	0.5	1.3	0	10	13.0	0.2	4	1	-1	65	25.6	26.5	1	1	-16	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
1	9	0	0.2	1.3	0	10	13.0	0.2	4	1	-1	65	25.6	26.5	1	1	-17	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	11	0	0.3	1.3	0	10	13.0	0.2	4	1	-1	65	25.6	26.5	1	1	-17	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	12	0	0.4	1.4	0	10	13.0	0.2	4	1	-1	65	25.6	26.5	1	1	-18	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	21	0	0.2	1.5	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-18	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	22	0	0.4	1.5	0	10	13.0	0.2	4	1	-1	65	25.6	26.5	1	1	-19	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	22	0	0.4	1.5	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-19	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
1	25	0	0.3	1.6	0	10	13.0	0.2	4	1	1	65	25.6	26.5	-1	1	-20	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
1	27	0	0.5	1.6	0	10	13.0	0.2	4	1	1	65	25.7	26.5	-1	1	-21	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
1	31	0	0	1.7	0	10	12.9	0.2	4	1	0	65	25.7	26.5	0	1	-21	0	-1	0.2	75	300	-9	-9	-9	3	0	0	0	12
1	34	0	0.2	1.7	0	10	12.8	0.2	4	1	-1	65	25.7	26.5	1	1	-22	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
1	36	0	0.1	1.8	0	10	12.8	0.2	4	1	1	65	25.7	26.5	-1	1	-23	0	-1	0.2	75	300	-9	-9	-9	3	0	0	0	9
1	39	0	0.2	1.8	0	10	12.7	0.2	4	1	1	65	25.7	26.5	-1	1	-23	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
1	50	0	0.4	2	0	10	12.5	0.2	4	1	-1	65	25.7	26.5	1	1	-26	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
2	31	0	0.4	2	0	10	13.8	0.2	5	1	-1	65	25.7	26.2	1	1	-34	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
2	42	0	0.1	2.2	0	10	14.2	0.2	5	1	1	65	25.7	26.2	-1	1	-35	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
2	45	0	0.1	2.3	0	10	14.3	0.2	5	1	-1	65	25.7	26.2	1	1	-36	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
2	47	0	0.3	2.3	0	10	14.3	0.2	5	1	-1	65	25.7	26.2	1	1	-37	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
2	49	0	0.1	2.3	0	10	14.4	0.2	5	1	-1	65	25.7	26.2	1	1	-38	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
2	53	0	0.5	2.4	0	10	14.5	0.2	5	1	1	65	25.7	26.2	-1	1	-39	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
2	55	0	0.2	2.4	0	10	14.6	0.2	5	1	1	65	25.6	26.5	-1	1	-39	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
2	58	0	0.5	2.5	0	10	14.6	0.2	5	1	1	65	25.6	26.5	-1	1	-39	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
2	58	0	0.4	2.5	0	10	14.6	0.2	5	1	-1	65	25.6	26.5	1	1	-39	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
2	59	0	0.1	2.5	0	10	14.6	0.2	5	1	1	65	25.6	26.5	-1	1	-40	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
3	7	0	0.3	2.6	0	10	14.6	0.2	5	1	-1	65	25.6	26.5	1	1	-41	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
3	8	0	0.3	2.7	0	10	14.6	0.2	5	1	-1	65	25.6	26.5	1	1	-42	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
3	10	0	0.3	2.7	0	10	14.6	0.2	5	1	-1	65	25.6	26.5	1	1	-43	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
3	12	0	0.4	2.7	0	10	14.6	0.2	5	1	1	65	25.6	26.5	-1	1	-43	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
3	16	0	0.2	2.8	0	10	14.6	0.2	5	1	1	65	25.6	26.5	-1	1	-43	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
3	17	0	0.3	2.8	0	10	14.6	0.2	5	1	1	65	25.6	26.5	-1	1	-43	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
3	18	0	0.2	2.8	0	10	14.6	0.2	5	1	1	65	25.6	26.5	-1	1	-44	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
3	27	0	0	3	0	10	14.5	0.2	5	1	0	65	25.5	26.5	0	1	-46	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	12
3	33	0	0.3	3	0	10	14.0	0.2	5	1	-1	65	25.5	26.5	1	1	-47	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
3	44	0	0.1	3.2	0	10	13.2	0.2	5	1	1	65	25.5	26.5	-1	1	-48	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
3	47	0	0	3.2	0	10	13.0	0.2	5	1	0	65	25.5	26.5	0	1	-49	0	1	0.2	75	300	-9	-9	-9	3	0	0	0	12
3	49	0	0.2	3.3	0	10	12.9	0.2	5	1	-1	65	25.5	26.5	1	1	-51	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
3	51	0	0	3.3	0	10	12.7	0.2	5	1	0	65	25.5	26.5	0	1	-51	0	1	0.2	75	300	-9	-9	-9	3	0	0	0	12
3	55	0	0.5	3.4	0	10	12.4	0.2	5	1	1	65	25.5	26.5	-1	1	-51	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
3	57	0	0.3	3.4	0	10	12.4	0.2	5	1	1	65	25.5	26.5	-1	1	-52	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9

TIME HR	TIME MIN	DET	LATRNG	TOT	PRECIP	VIS	WDSP	CLDC	HS	WHCAPS	SWDIR	RELHM	AIRTP	WTTP	RELAZ	LEV	ELEV	MOONVIS	MOONRA	PHS	SPD	ALTTYPE	POS	LO	EXP	TYNO	SUBTY	LASER	ACLASR	RELBRN
3	59	0	0.5	3.5	0	10	12.4	0.2	5	1	-1	65	25.5	26.5	1	1	-53	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
3	59	0	0.2	3.5	0	10	12.4	0.2	5	1	1	65	25.5	26.5	-1	1	-53	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
4	1	0	0.2	3.5	0	10	12.4	0.2	5	1	1	65	25.5	26.5	-1	1	-53	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
4	9	0	0.4	3.6	0	10	12.4	0.2	5	1	-1	65	25.5	26.5	1	1	-55	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
4	10	0	0.2	3.6	0	10	12.4	0.2	5	1	-1	65	25.5	26.5	1	1	-55	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
4	12	0	0.4	3.7	0	10	12.4	0.2	5	1	-1	65	25.5	26.5	1	1	-55	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
4	14	0	0.4	3.7	0	10	12.4	0.2	5	1	1	65	25.5	26.5	-1	1	-56	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	9
4	18	0	0.2	3.8	0	10	12.4	0.2	5	1	1	65	25.5	26.5	-1	1	-57	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
4	19	0	0.3	3.8	0	10	12.4	0.2	5	1	1	65	25.5	26.5	-1	1	-57	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
4	20	0	0.2	3.8	0	10	12.4	0.2	5	1	1	65	25.5	26.5	-1	1	-57	0	0	0.2	75	300	-9	-9	-9	3	0	0	0	3
4	28	0	0	3.9	0	10	12.4	0.2	5	1	0	65	25.5	26.5	0	1	-58	0	-1	0.2	75	300	-9	-9	-9	3	0	0	0	12
EOF																														